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ORIGINAL ARTICLES.

BLOOD EXAMINATIONS AS AN AID TO SURGICAL DIAGNOSIS.[1]

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Shock and Hemorrhage.—Observations have demonstrated that there is a leucocytosis of 15,000 to 24,000 following hemorrhage. As a rule, this comes on within a few hours. There are not sufficient observations to demonstrate the relation between the amount of blood lost and the leucocyte-count. We have not sufficient data to clearly determine the exact changes in the number of white blood-cells in shock from injury alone without loss of blood.

Following hemorrhage, in addition to the rise in the number of leucocytes, there is a diminution in the number of red blood-cells and the percentage of hemoglobin. In severe hemorrhage a blood-count will indicate to a certain extent the amount of blood lost, but, as a rule, not until six or more hours have intervened after hemorrhage.

Examinations of the blood after contusion of the abdomen, to ascertain, if possible, whether we can distinguish by the changes in the elements of the blood the difference between shock from the injury alone, internal hemorrhages, and peritonitis from rupture, are not sufficient in number to allow any positive conclusions.

Cabot[2] writes: "Often one hears the question discussed in any accident-room in any hospital whether to operate at once or wait until the patient has got over the shock. The question is not often asked, far less answered, whether the shock is simple or largely anemic (cerebral or general) from loss of blood, or whether it is of nervous origin, *i. e.*, due to concussion or compression. The right decision of this question is of great importance, for if the shock means anemia transfusion may be indicated, while in a condition of cerebral concussion or compression transfusion will probably do harm." (Authorities do not agree with Cabot. Transfusion is not contra-indicated. See *Progressive Medicine*, December, 1900, p. 108.) "An examination of the blood enables us in certain cases to decide such a question—that is, if the number of red cells is considerably diminished (3,500,000 or less) and the patient is known not to have been previously anemic, the shock probably means hemorrhage." "The blood-count may enable us to gauge approximately the amount of hemorrhage. Here it should be remembered, however, that immediately after hemorrhage the count may be normal, since only the amount and not the quality of the blood is affected. Within a few hours, however, fluid is absorbed from the tissues into the vessels, and then an anemia will be indicated by the blood-count." "An internal or cerebral hemorrhage, a rupture of an extra-uterine pregnancy, ruptured aneurism, laceration of the spleen, kidney or liver, etc., can sometimes be diagnosed by the blood examination."

McLean,[3] in his article entitled "Examination of the Blood in Surgical Diseases," practically adds nothing new to Cabot's statement in regard to the blood examination in shock.

The Importance of a Careful Blood Examination Preliminary to General Anesthesia.—There are now sufficient observations to demonstrate pretty conclusively that in marked anemia, especially when the hemoblobin percentage is low, general anesthesia, especially if prolonged, is dangerous. Some authorities give 50 per cent., others 40 per cent., but the majority agree that 30 per cent. of hemoglobin is a danger signal, and, if possible, the operation should be delayed until appropriate treatment has been used to increase the percentage of hemoglobin and the number of red blood-cells.

This important subject has been studied by Cabot (*loc. cit.*), Da Costa, Mikulicz, Hamilton Fish,[4] and others.

My own experience[5] has been sufficient to indicate the truth of their statements. An anesthetic has great additional dangers when given to patients with the hemoglobin estimate below 50 per cent.

Post-Operative Leucocytosis.—There is need for much more study on this question. Most authorities agree that following ether there is *perhaps* a slight increase in the leucocytes, which, however, disappears within twenty-four and at most thirty-six hours. In operations with much loss of blood there would, of course, be a temporary rise in the leucocytes; but, on the whole, in the average operation one should expect the leucocytes to be within the normal limits—twenty-four hours after operation. If this is true, a sudden rise in the leucocytes would indicate some post-operative complication. In abdominal surgery it would suggest peritonitis, although if the peritonitis was a very grave infection the leucocytes would soon fall rapidly. Perhaps the leucocyte-count as an aid to the post-operative diagnosis in abdominal surgery is most certain in the early recognition of obstruction. Here there is always a rise, usually over 20,000, associated

[1] Paper read before the American Surgical Association, at Baltimore, May 6, 1901.

[2] "Clinical Examination of the Blood," William Wood & Co., New York, 1898, and "International Text-Book of Surgery," Warren & Gould, 1900, Vol. I., p. 81.

[3] MEDICAL NEWS, December, 1899, Vol. LXXV., p. 713.

[4] Annals of Surgery, 1899, Vol. XXX., p. 70.

[5] Progressive Medicine, Dec., 1900.

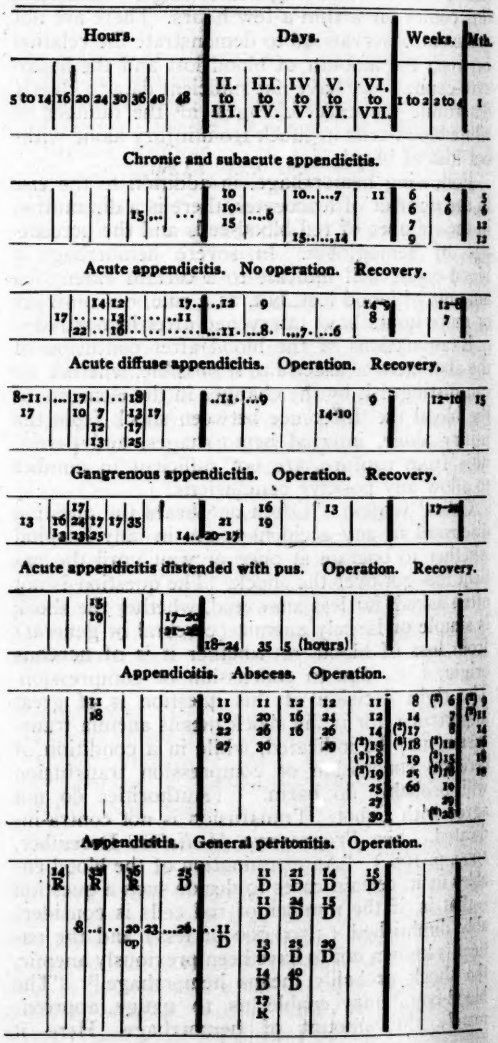
with any obstruction of the intestines. This rise generally takes place within from eight to twenty hours after the beginning of the obstruction, and in a few cases observed the rise in the leucocytes had been prominent before the clinical symptoms themselves were sufficiently clear to make a positive diagnosis. The number of observations so far have demonstrated that when, after laparotomy with general anesthesia, the patient develops slight distention, or even marked distention, with nausea and vomiting, which seems more or less due to paralysis of the intestines, and not to a definite obstruction or peritonitis, *the leucocytes do not rise*, at least not above 12,000 to 15,000. If these observations are confirmed the counting of the white blood-cells would be a great aid in the differential diagnosis in the first twenty-four to forty-eight hours or later, after laparotomy, between benign abdominal distention and obstruction or peritonitis, for which operative interference would be indicated early. This is apparently a closer relation between the extent and character of the operation and the post-operative leucocyte-count than the anesthetic. A more complete report on this is in preparation and will be published later.

Post-Operative Phlebitis.—In a few cases observed there is a rise in the leucocytes, varying from 15,000 to 20,000. Such a leucocytosis has been observed frequently in typhoid phlebitis; but, on the whole, the observations of the changes in the leucocytes after operation are not well established.

If the phlebitis is confined to the iliac veins the first symptoms are those of an acute abdominal lesion, viz., localized pain and slight muscle spasm in the iliac fossa, nausea and vomiting. If on the right side, after operation, the condition might simulate an appendicitis, or, in women, a salpingitis. In typhoid fever the early clinical picture is very much like intestinal perforation. A case of this character has been reported by Harvey Cushing[6]; also by William S. Thayer[7] in his article entitled "Observations of Blood in Typhoid Fever."

The Importance of the Leucocyte-Count in the Early Recognition of Acute Abdominal Lesions.—The discussion of this subject is the chief theme of this paper not only because of its importance, but, fortunately, in this field we have more observation.

Explanation of Table.—The following table represents all the counts made on cases of appendicitis. The first count in practically every instance was made when the patient was first admitted to the hospital, and this count is placed under the time corresponding to the number of hours or days since the beginning of the acute attack; subsequent counts (if made) are noted by dotted lines after the first count under the proper time. In the cases operated upon the last count represents the time of the operation, with one exception, in the group *appendicitis, general peritonitis, operation.* The letters Op. under the figure 20 represent the time of operation. The three subsequent counts are post-operative, and show the fall in the leucocytes, with general peritonitis. Under the column *appendicitis, abscess, operation,* there are only single counts. The figures 2 or 3 in front of the figures, representing the number of leucocytes, indicates that there were two or three cases with this number of leucocytes at this time. Under the column *appendicitis, general peritonitis, operation,* the letter R indicates the patient recovered, and D the patient dead. The time in these cases represents the entire interval of the acute attack, and not the duration of the peritonitis, which, in the majority of cases, was impossible to ascertain.



Leucocytosis in Appendicitis.—When observed within forty-eight hours the number of white blood-cells is in a majority of instances of great

[6] Johns Hopkins Hospital Bulletin, No. 92, November, 1898.
[7] Johns Hopkins Hospital Reports, Vol. VIII., 1900.

value, indicating the extent of the inflammatory condition of and about the appendix. This fact is well illustrated in the table.

Chronic and Subacute Appendicitis.—Sixteen counts. Here we have cases of recurrent appendicitis, or of appendicitis suffering from the first attack; first observed practically at the end of the attack, when the clinical symptoms were subsiding or practically over. The almost uniform, low leucocyte-counts, even in this small group of cases, are very suggestive that such an observation is an important additional aid to recognize that an acute attack of appendicitis is subsiding, or, when, seen later after the clinical signs have entirely disappeared, the distance of leucocytosis should be considered a distinct factor in excluding an abscess. It is noticed in the table that the highest count in this group of cases was 15,000. In one case, admitted thirty-six hours after the beginning of the attack, in which the local clinical symptoms were distinctly less according to the statement of the patient, and which when admitted were just sufficient to suggest an appendicitis, these slight local symptoms disappeared, asssociated with a fall in the leucocytes to 10,000 and 6,000. A later operation demonstrated a diffuse thickened appendix, but no pus. Observed between the second and seventh day the leucocyte-counts have been 15,000 in two cases, 10,000 in two cases, in one falling to 7,000, and in one case 11,000. *With but a few exceptions* these are distinctly lower counts than in the other groups of cases. In all of these cases, at an operation performed later, a simple diffuse appendicitis was found with no pus or evidence of infection outside of the appendix. In ten cases observed from one week to one month or longer after the last acute attack, in only two cases were the leucocytes as high as 12,000; the remainder were 9,000 and lower. In a majority of these cases there were no clinical symptoms; simply a history of one or more previous attacks. At the operation a diffuse appendicitis was found, with no evidence of pus outside of the appendix. Comparing this group with cases of appendicular abscess admitted from one week to one month or longer after the beginning of the attack (thirty-three cases) we see distinct differences. In those cases with abscess, only six out of the thirty-three cases had leucocyte-counts below 12,000. Some of these thirty-three cases of abscess exhibited no clinical evidence of tumor. This observation demonstrates that in cases of appendicitis admitted *late* in the attack a *high* leucocyte-count is almost a positive evidence of an *abscess*, even when the clinical symptoms have entirely subsided and the abdominal examination is negative. In a few cases, *but only a few*, we may expect to find a small localized abscess, even when white blood-cells show no marked increase; but this is a rare exception to the general rule.

Future observations may demonstrate that the leucocyte-count will aid us in indicating the better time to operate in cases of appendicitis with abscess. Many of these patients come to the hospital at the end of the attack, the clinical symptoms are subsiding or have ceased, and we usually find on abdominal palpation an area of tumor or induration, suggesting a localized collection of pus, which in some instances, however, proves to be a mass of adherent omentum. Now and then in such cases when we have delayed we have found that the localized pus has become much inspissated, and the virulence of the organism may have decreased. Experience would seem to demonstrate that if the pus is distinctly localized, and the symptoms on the decrease, it is, perhaps, the safer plan to delay the operation to a date when the difficulty of removing the appendix and the danger of infecting the general peritoneal cavity would be less. Our cases require a more minute study before such a conclusion can be demonstrated.

Acute Appendicitis; No Operation; Recovery.—In the cases admitted within forty-eight hours with acute symptoms, if on account of the clinical picture, operation has been delayed, we have always observed a falling leucocytosis. These patients have recovered, and at a later operation the appendix is found to be the seat of a diffuse inflammation, but there has been no evidence of pus outside the appendix. In one case admitted sixteen hours after the beginning of the attack the leucocytes fell in ten hours from 17,000 to 13,000, and in twenty-four hours to 11,000, associated with the disappearance of the symptoms. With one exception the highest first leucocyte-count in this group has been 17,000, falling in a few hours to 12,000, 9,000, or even lower. A patient admitted twenty hours after the beginning of the acute attack had a leucocytosis of 22,000. The clinical symptoms, however, were not very marked. The patient was observed eight hours. During this period the leucocytes fell to 16,000, and the local symptoms practically disappeared. Within the next twenty-four hours the leucocytes were 11,000, then 8,000, 7,000, then 6,000. Although this patient with a leucocytosis of 22,000 at the end of twenty hours recovered, and there is every reason to believe that the inflammatory condition about the appendix subsided, nevertheless it is an exception to the general rule, and it would be safer, I believe, to operate in those cases of acute appendicitis observed within the first forty-eight hours with a leucocytosis of 20,000.

Acute Diffuse Appendicitis; Operation; Recovery.—Eleven cases. The leucocyte-counts in this group of cases do not differ much from those in the group of acute appendicitis which were not operated on until after the end of the acute attack, and, of course, it is a question whether all of these cases might have recovered from this attack without operation. It is to be noted that in one case observed in the hospital the leucocytes rose from 8,000 to 18,000, and a second from 13,000 to 17,000. In *three cases* there was a fall in the leucocytes from 10,000 to 7,000, from 11,000 to 9,000, and from 14,000 to 10,000. In two cases observed at the end of two days and five days it was a question whether the patient

was getting over the attack or not, but it was considered wiser to operate. A simple diffuse appendicitis was found. In the third, admitted twenty hours after the beginning of the attack and observed four hours, the patient clinically was distinctly getting worse; the leucocytes had fallen from 10,000 to 7,000. The only high leucocyte-count in this group of cases was 25,000. This patient was seen thirty-six hours after the beginning of the attack, and clinically the attack seemed to be subsiding, but on account of the high leucocytosis it was considered best to operate. In this case the exudate about the thickened appendix was very excessive, and it is a question whether, if operation had been delayed, an abscess would not have developed.

The following two cases are reported in detail, the first because the patient was observed in the hospital from the beginning, and represents the typical rise in the leucocytes from 8,000 to 18,000 in thirty-six hours, associated with an acute diffuse appendicitis. It cannot be stated in this case whether the patient would not have recovered from this attack, but the rise in the leucocytes was a distinct aid in the early recognition of the disease, which was associated with but slight local symptoms.

The second case is reported in detail, because it represents the rare exception of a low and falling leucocytosis associated with a distinct increase in the local symptoms, in which case the operation was indicated chiefly on account of the increasing local signs, although a careful observation indicated a falling and a low leucocytosis.

Case I.—The patient, a girl, aged seven years, was admitted to the hospital with a rather indefinite history of previous attacks of pain and the history of pinworms in the stools. When first admitted and observed for seven days there were no symptoms. Suddenly, one night, she began to complain of abdominal colic, which, in a few hours, localized itself in the right iliac fossa; in six hours the leucocytes were 8,000; ten hours, 11,000; twenty-four hours, 17,000; thirty-six hours, 18,000. During this time the temperature rose from 98° to 100° F.; no nausea nor vomiting. The local symptoms consisted only of slight muscle spasm and tenderness in the right iliac fossa. The slight local abdominal symptoms, combined with the quite high leucocytosis, were considered sufficient to indicate an early operation. The appendix was free, but thickened by diffuse inflammation; the lumen of the appendix was filled with small pinworms.

Case II.—A colored man, aged about twenty years, entered the hospital with a history of diarrhea and colic of one week's duration, and of local symptoms; pain in the right fossa, suggesting appendicitis of twenty-four hours' duration. At first examination, temperature 104.2° F., pulse 99, respiration 30. The patient's expression was one of stupor; tongue coated, but moist; leucocytes 10,000. The abdominal symptoms were so slight that the possibility of typhoid fever was considered, and a Widal test made, which was suggestive, but not positive. I saw the patient four hours later. At this time the leucocytes had fallen to 7,000, and the temperature to 102° F.; but, on examination, the tenderness and muscle spasm in the right iliac fossa had slightly increased, and there was a distinct area of dulness in the right flank, which suggested encapsulated fluid. At the operation a diffusely thickened and inflamed appendix was found covered with a little fresh exudate, and there was some free, cloudy, sterile fluid in the abdominal cavity. The chief collection was retrocecal where the appendix was situated. After the operation the patient continued to have intermittent fever for a week, the cause of which we could not make out; there were no malarial organisms; the Widal reaction was not positive, and there was no leucocytosis. He made an uninterrupted recovery.

Gangrenous Appendicitis; Operation; Recovery.—In this group of cases, as a rule, the leucocytosis is higher and rises more rapidly, and in three instances it has been of the greatest importance in the early recognition of a grave inflammatory condition of the appendix, which, without doubt, would have led to general peritonitis and death if early operation had not been instituted. In one case the rapid rise in the leucocytes was practically the only clinical evidence of a grave abdominal condition. The patient, a boy, suffered from an attack of pain and nausea, and vomiting followed a few hours after taking a good deal of indigestible food. When the stomach relieved itself there was no further pain and no further abdominal symptoms. After twenty-four hours the leucocytes were 17,000. A leucocytosis of 17,000 in a patient a number of hours after taking food would make one suspicious of an inflammatory lesion. In thirty hours the leucocytes were 17,000, and in thirty-six hours 35,000. The highest temperature was 100° F. There were practically no abdominal symptoms, except the history of a short attack of colic and vomiting following indigestible food. Because of this rapid rise and the high leucocyte-count (35,000) it was considered safer to explore the abdomen. A gangrenous appendix with beginning purulent pelvic peritonitis was found. A second and almost similar case was observed when the leucocytes rose from 13,000 to 24,000 in twenty hours after the beginning of the first colicky pain, the first count being fourteen hours after the beginning of the pain. In this case there were, in addition, marked clinical signs of appendicitis. In the third case, with very slight local signs, the leucocytes rose rapidly from 13,000 to 23,000 in twenty hours (first count sixteen hours).

These three cases of gangrenous appendicitis I report in detail because they demonstrate the great diagnostic importance of the leucocyte-count:

Case I., observed by Dr. Thomas R. Brown in this city, communicated to me personally, is perhaps the most important. The patient, a boy, aged eleven years, indulged freely one Saturday

night about 8 o'clock in strawberry ice cream and soda water; at 4 o'clock the next morning he was awakened by severe epigastric colic, nausea, and vomiting. The patient was seen by Dr. Brown at 8 a.m. (four hours); temperature 98° F., pulse 76. He was given a seidlitz powder and powders of subnitrate of bismuth. The abdominal examination was negative. He was seen again at 10 a. m. (six hours); no change in the symptoms; no nausea or vomiting. At 6 p. m. (twelve hours) the temperature was 98.8° F., pulse 86. There had been a stool; the urine was voided without pain; he was apparently very comfortable, and complained of no pain; abdominal palpation was negative; he looked, however, a little languid. There was nothing in the clinical picture to suggest that the condition was anything more than that to be explained by indigestion. On Monday morning at 8 o'clock (twenty-eight hours after the attack of colic) his temperature was 99.4°., pulse 95. He had passed a comfortable night; no nausea or vomiting; no abdominal symptoms, but he looked a little more depressed. The leucocyte-count at this time was 17,000. (A leucocytosis twenty-eight hours after an attack of abdominal colic in a patient taking practically no food is an indication of some inflammatory condition.) At 11 o'clock the leucocyte-count was 17,500, temperature 100° F., pulse 100, but no abdominal signs. At 4 o'clock (thirty-six hours after the beginning of the colic) the leucocyte-count was 35,000, temperature 100.6° F., pulse 100. For the first time in the right iliac fossa there seemed to be a little swelling; no marked muscle spasm nor tenderness. He did not complain of pain when he voided urine. This rapid and high rise in leucocytes, even without abdominal symptoms, but following abdominal colic, was considered by Dr. Brown, his physician, and Dr. Finney, the consulting surgeon, a sufficient indication for exploration of the abdomen. On opening the abdomen an appendix eight inches in length and extending into the pelvis was found. The appendix was gangrenous for at least two-thirds of its length, and perforated at its tip; no adhesion, and no localization. The pelvis was filled with cloudy fluid; the intestines in the pelvis and right iliac fossa were injected, covered with a little fibrous exudate and cloudy fluid. Cultures were not taken. The patient recovered.

In this case the rise in leucocytes was practically the only indication for operation. There were no previous attacks of appendicitis, and the only clinical manifestations pointing to the appendix was the onset of the abdominal colic associated with nausea and vomiting.

Case II., recently observed by Dr. Mitchell and myself, resembles Dr. Brown's observation in the rapid rise in the leucocytes, but was associated in this instance with distinct abdominal symptoms. The patient, a boy, aged eighteen years, who also filled his stomach one Saturday night with indigestible food, experienced about six hours later intense abdominal colic, which was worse on the right side, followed in four hours by excessive nausea and vomiting. The abdominal colic continued all night and when he voided urine it gave him some pain. He walked to the hospital and was first examined about 1 p. m.; temperature 101° F., leucocytes 13,000. Both recti muscles were held tense, but the muscle rigidity was more marked on the right side. The clinical picture at this time was sufficient, without the leucocyte-count, to make a diagnosis of pelvic appendicitis. His parents were sent for at once, but refused operation until 6 p. m., so that he was not operated on until twenty hours after the beginning of the attack. He was first seen at fourteen hours. In fifteen hours the temperature was 102° F., pulse 112, respiration 28, leucocytes 15,600; in sixteen hours, leucocytes 16,000; in eighteen hours, temperature 104° F., pulse 112, respiration 28, leucocytes 19,000; in twenty hours, temperature 103.4° F., pulse 116, respiration 20, leucocytes 24,800. There had been no nausea or vomiting since the first attack at 1 o'clock the night before. The muscle rigidity and tenderness increased. At the operation a very long appendix was found situated in the pelvis, two-thirds of its distal end being gangrenous; no perforation. The pelvis and the lower portion of the abdominal cavity were filled with cloudy fluid. The intestines in the pelvis were injected. Cultures: Bacilli, but no streptococci. The patient made an uninterrupted recovery.

Case III. was observed in the hospital. The patient, one of the hospital residents, aged twenty-eight years, was taken with abdominal colic and slight diarrhea, a condition not uncommon with the residents during the hot summer months. At the end of sixteen hours the temperature was 101° F., leucocytes 13,000. There was no distinct muscle spasm, but a slight area of tenderness on deep palpation at the outer border of the right rectus muscle; no nausea nor vomiting. Also about this time micturition gave a little pain. At the end of twenty hours the temperature was 101.6° F., leucocytes 23,000. The patient vomited for the first time. The patient was immediately prepared for operation, which was performed twenty-two hours after the beginning of the attack. The temperature just before the operation was 104.2° F., pulse 80, and for the first time during the preparation for operation muscle spasm was noted. At the operation by Prof. Halsted the entire appendix was gangrenous and situated in the pelvis; in its center over one hard concretion the wall was very thin; the pelvis was filled with cloudy fluid containing the bacillus coli communis. The patient recovered.

Acute Appendicitis Distended with Pus; Operation; Recovery.—There are five cases in this group. In all the localized symptoms were sufficient to indicate immediate operation, due, perhaps, to the great tension of the thickened and inflamed appendix, which was distended with pus, but not yet gangrenous. Such a condition is one of great danger, because an appendix distended with purulent material containing, without much

doubt, bacteria of great virulence, might perforate at any moment and discharge into an unprotected peritoneal cavity. Fortunately, in these five cases the operation was performed in time. Two cases were admitted twenty-four hours after the attack. In one the leucocytes were 15,000; in the other, 19,000. The local signs in the patient in whom the leucocyte-count was only 15,000 was less marked, the pus in the appendix was of smaller quantity, the walls of the appendix thickened and under less tension. What would have happened if observed a number of hours longer is difficult to tell. Two cases were admitted forty-eight hours after the beginning of the attack, one with a leucocyte-count of 17,000, with a second count in two hours, just before the operation, of 20,000; the other of 21,000, second count of 28,000. A third case, admitted on the second day, observed five hours showed a rising leucocyte-count from 18,000 to 35,000. In these three cases the clinical picture was a marked one, and the appendix was not much thickened, but was under great tension. In only one of these five cases was there a walling off of the appendix by peritoneal exudate, and it seems fair to infer that a perforation would have been followed by a very virulent and perhaps fatal peritonitis.

Appendicitis; General Peritonitis; Operation.—The correct interpretation of the leucocyte-count in this group of cases is difficult, because in the majority of cases it is hard to estimate the duration of the peritonitis. Observation seems to demonstrate that in the early hours of peritonitis there is a rapid rise in the leucocytes, which, however, soon falls. These cases have been grouped according to the duration of the attack, and not to the approximate duration of the peritonitis. Five cases have been observed, in each of which the beginning of the attack was within forty-eight hours. Three cases recovered—one, operated on sixteen hours after the beginning of the attack, with a leucocytosis of 14,000; one, twenty-four hours, with a leucocytosis of 32,000; and one thirty-six hours, with a leucocytosis of 36,000. In these three cases there were distinct local symptoms, but slight general abdominal symptoms. There was no distention of the intestine; the exudate was chiefly purulent; in the exudate in the general peritoneal cavity only the colon bacilli were found, and no streptococci. In one case, observed forty-eight hours after the beginning of the attack and operated on at once, the leucocyte-count was 25,000. The general abdominal symptoms masked the local symptoms, the patient was very ill, the intestines were distended, streptococci were present, and the patient died. One patient was observed in the hospital. Twenty hours after the beginning of slight abdominal colic and pain, localized in the right iliac fossa, the leucocytes were 8,000; sixteen hours later, or thirty-six hours after the beginning of the attack, the leucocytes were 20,000. Clinically, the patient was not very ill, but on account of the rise of the leucocytes from 8,000 to 20,000, operation was performed. The appendix was perforated and surrounded by a few drams of purulent material. This pus was not walled off by adhesions; the general peritoneum was slightly injected; it appeared as if there was beginning general peritonitis. After the operation the leucocytes continued to rise for twelve hours up to 26,000; then within the next twelve hours fell to 11,000, the patient dying with a clinical picture of peritonitis, which was found at autopsy. In this case streptococci were present. In five cases admitted three days after the onset the symptoms, all showing the clinical picture of peritonitis, the leucocyte-counts in four were 11,000, 11,000, 13,000, and 14,000. These four cases were fatal. The fifth case, whose leucocyte-count was highest (17,000), recovered. The cultures from the peritoneal cavity in this case showed bacillus coli communis.

These counts and others not given in this short paper seem to demonstrate that within forty-eight hours after the beginning of an attack a very high leucocytosis is suggestive—but not at all positive—of beginning peritonitis, and that the leucocyte-count does not help us with regard to prognosis. After the second day, in cases in which the peritonitis has been present longer, we have never observed a recovery with a low leucocyte-count. If the leucocytosis still remains high at this period the prognosis seems better for the ultimate recovery after operation.

Appendicitis; Abscess.—So far, in our observations, we have but two cases of abscess with leucocyte-counts observed within forty-eight hours after the beginning of the attack. In one the leucocytosis was 18,000, and there were distinct local signs, although, on account of the muscle spasm, it was impossible to make out a collection of pus. This patient was operated on twenty-four hours after the beginning of the attack. A small abscess was found about the perforated appendix; the collection of pus was well walled off, but there was beginning peritonitis demonstrated by cloudy sterile fluid and fibrinous exudate on the intestines about the abscess. The patient recovered. The low count—11,000—twenty-four hours after the onset is hard to explain. This patient had marked local signs of inflammation, but no definite tumor. At operation there was evidence that there had been recurrent attacks; the adhesions about the appendix were very firm, but the collection of pus was very small. The patient recovered.

There have been twenty-seven cases of appendicitis with abscess between the second and seventh day. In six cases the leucocyte-counts have been between 11,000 and 12,000; the others higher, the majority between 18,000 and 30,000. The interpretation of the leucocytes at this stage of the disease, especially between the third and seventh day, is a difficult one. A high leucocytosis after the second day of the disease, in the majority of instances, is an indication of gangrene, pus in the appendix, abscess, or peritonitis. A low leucocytosis has been associated with an

acute attack, getting well or completely over, but in a few instances it has been associated with abscess and peritonitis. In these six cases of abscess, with leucocyte-counts between 11,000 and 12,000, four were distinctly getting well, the abscess well walled off; in two the patients were very ill, and there was evidence of beginning peritonitis; one died.

The interpretation of the leucocytosis in the cases of appendicular abscess between one week and one month has already been discussed with the group of cases of chronic and subacute appendicitis.

Conclusions in Regard to the Interpretation of the Leucocyte-Count in Appendicitis.—Although there are exceptions to the rule, a rising leucocytosis is an indication for an operation. In the majority of instances, if the leucocytes reach 18,000 before forty-eight hours, it has been an indication of an advanced pathological lesion. For example, excessive exudate with a diffuse appendicitis, gangrene, or an appendix distended with pus, abscess, or beginning peritonitis. When the leucocytes have been below 18,000, or, when counted a number of times, have fallen in number, the patients have recovered without operation. With a fall in the leucocytes there has been associated a rapid cessation of the local symptoms, or, if operated on, the appendix has been the seat of but slight diffuse inflammation.

Observed later in the attack, especially after the fourth day, a high leucocytosis has usually been associated with localized abscess or beginning peritonitis. It is to be remembered, however, that it is possible to have an abscess with a low leucocyte-count. Out of the fifty-six cases of appendicitis with abscess fourteen have had a leucocyte-count between 6,000 and 12,000; the remainder have been higher, the majority over 20,000; the usual count is between 20,000 and 25,000, one count 30,000, one 60,000.

It is also to be remembered that with peritonitis there may be a very low leucocyte-count. This, so far in our observations, has been associated with an extreme septic condition of the patient, and in every case death has followed. These low leucocyte-counts have been observed in patients admitted to the hospital three days or longer after the beginning of the attack, so it is difficult to ascertain the exact duration of the peritonitis. Observations are sufficient to indicate that in the majority of instances beginning peritonitis is associated with the rise in the leucocytes, which, however, falls as the patient becomes more septic.

In a general way we may feel that a patient admitted with symptoms of peritonitis, with a high leucocyte-count, has better chance for recovery. The leucocyte-count simply indicates, however, a short duration of the peritonitis. The positive prognosis depends more upon the bacteriological findings than upon the leucocytosis. So far in our observations in the four cases which recovered the cultures demonstrated the presence of colon bacilli and other bacilli, but no streptococci.

Before more definite conclusions can be made in regard to the interpretation of leucocytosis in appendicitis we must have more observations, especially observations of cases from the beginning of the attack, where we have a number of counts. There are sufficient observations, however, to make a careful surgeon insist upon a blood-count in every case of acute abdominal lesion, and during the first forty-eight hours to have counts made every four to six hours. *A rapid rise in the leucocytes, especially above 18,000, should, in my opinion, be a sufficient indication for exploration, even in those cases in which the local symptoms are very slight. In the few exceptions in which the local symptoms are sufficiently distinct to indicate an operation a low leucocytosis should not influence as to delay operation.*

Leucocytosis in Intestinal Obstruction.—Dr. Harvey Cushing, I think, was the first in this country to call attention to the leucocytosis associated with intestinal obstruction. I referred to this in *Johns Hopkins Hospital Reports*, Vol. VII., 1898, p. 332, in relation to leucocytosis in strangulated hernia. Since Cushing's first count in August, 1898, the leucocytes have been estimated in almost every case of intestinal obstruction, and in this group of cases the increase in the number of white cells associated even with very slight symptoms of intestinal obstruction has been found to be of great value in the early recognition of the obstruction, frequently before the clinical signs were positive. We have a large group of cases which have demonstrated that within twelve hours after the beginning of the obstruction the leucocyte-count may rise to 20.000. Within the first twelve to twenty-four hours a few observations would demonstrate that if the leucocyte-count rises above 25,000 or 30,000 the probabilities are that one will find gangrene of the obstructed loop or beginning peritonitis. If observed on the second or third day after the beginning of the symptoms it is difficult to make a differential diagnosis with regard to gangrene or peritonitis. After the third day, in cases in which there is no gangrene and no peritonitis, or in which the auto-intoxication is not yet very grave, the leucocytes still remain high—15,000 to 23,000, according to the degree of obstruction—complete, higher; partial, lower. In the presence of gangrene, peritonitis or grave auto-infection, the leucocytes begin to fall. If the patient is admitted after the third or fourth day with a history of intestinal obstruction, and still has a high leucocyte-count, the prognosis is good for operation. If the count is low, and especially if it is below 10,000, the probabilities are that you will find at operation extensive gangrene or peritonitis, or the patient will be so depressed by the auto-intoxication that reaction does not follow relief of the obstruction.

In five cases of strangulated hernia admitted within twelve hours after the rupture had become irreducible the leucocyte-counts were 10,000, 15,000, 18,000, and in two cases 20,000. In all of

these cases the sac contained congested intestine. All the cases recovered after operation. In the one in which the leucocytosis was 20,000 we were able to reduce the rupture with ice bags, the leucocytes falling in three hours to 18,000, and in twenty-four hours to 12,000. In one case the patient left home with an irreducible hernia of some hours' duration, but during the journey of some fourteen hours on a railroad train the rupture became reduced, and on admission the leucocyte-count was but 6,000, which seemed to exclude the possibility of reduction *en bloc* of the rupture. The patient recovered, and some days later was operated on for the reducible hernia.

An observation of my own demonstrates the importance of even a slight rise in the leucocytes as an aid to early recognition of obstruction. The patient had recently been operated on in the hospital for acute appendicitis with abscess, and the wound had been drained. This clinical history, of course, pointed to the possibility of obstruction from adhesions. Some four months after this operation he came to the hospital complaining of abdominal pain of six hours' duration in the region of the scar. There had been no nausea or vomiting, and abdominal examination was negative. The pain, however, was quite severe and was slightly remittent, as if coincident with peristaltic action, although such intestinal movements could not be made out during a long and careful examination. The leucocyte-count in four hours rose from 8,000 to 12,000. There was no fever, and the patient had not taken any food.

In view of the history and rise of the leucocytes an exploratory operation was done. It was found that the omentum and cecum were adherent to the old wound, and to the cecum a knuckle of small intestine was adherent, producing a partial obstruction. The ileum from this point of obstruction for a distance of one foot was collapsed; in the other direction slightly distended. The operation required some time in order to separate all the adhesions and it was fortunate that an early exploration was done, when the patient was in such a good condition that prolonged anesthesia was not contra-indicated.

The Leucocyte-Counts in Cholecystitis.

Acute Cholecystitis.—In seven cases the leucocyte-counts have varied from 20,000 to 26,000. Two cases admitted at the end of the attack, with no symptoms, had leucocyte-counts of 8,000. The rise in the leucocytes associated with symptoms of acute cholecystitis does not seem to demand the same imperative early operation as similar counts associated with symptoms of appendicitis, because here the danger of peritonitis or abscess is a very distant one. We have observed two cases from the very onset in the hospital. One case was of special interest because the cholecystitis occurred during convalescence from typhoid fever.

The patient, a woman, aged forty-nine years, was admitted to the medical side, apparently at about the tenth day of typhoid fever; the leucocyte-count was 6,000. During the forty-two days she had a more or less uninterrupted typical typhoid attack, with no rise in leucocytes. On this day (the forty-second), at 4 o'clock in the morning, the temperature, which had been normal for some days, rose to 101.7° F., and in four hours to 105.2° F. The patient complained of pain in the abdomen and region of the gall-bladder. In this area there was distinct muscle spasm, but, on account of the muscle spasm, no tumor could be made out; respiration 56, pulse 128; the leucocytes had risen to 16,500; in three hours to 22,000. The operation was performed at this time by Cushing. Five hours after the beginning of the attack the gall-bladder contained gall-stones and slightly purulent bile; cultures, the bacilli coli communis.

The second case was rather a feeble man, aged sixty-five years, who on November 3, 1899, under ether anesthesia had been operated on for a very huge lipoma of the thigh; following the operation pneumonia associated with a high leucocytosis. For some days the temperature had been normal, with no leucocytosis. On the 15th, in the morning, he complained of abdominal pain in the gall-bladder region, slight nausea, and vomiting. Examination of the abdomen was negative. This attack of pain lasted a few hours and then disappeared; temperature 100° F., pulse 99. During the afternoon he had slight attacks of pain. The next morning, twenty-four after the first gall-bladder colic, associated with pain, the temperature rose to 102° F., in a few hours to 103° F.; leucocytes 13,000. In the gall-bladder area there was distinct tenderness and muscle spasm, and on deep palpation one felt a tumor descending on inspiration. The leucocytes rose from 13,000 to 22,000 in six hours. There were no signs of pneumonia or of malaria; clinically the picture was that of acute cholecystitis. The operation was performed under cocaine anesthesia. The gall-bladder was distended and contained purulent material and a few gall-stones. The cultures showed bacillus coli communis and staphylococcus pyogenes aureus. The patient recovered.

THE RACIAL FACTOR IN HYSTERIA.[1]

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BEFORE discussing the racial factor in hysteria, it is my desire to make a few general remarks concerning hysteria in its broader sense. This disease, ever coming to our attention by the very accuracy with which it was simulate organic nerve diseases, is confined to no latitude, country or people, and if we would use comparative methods of studying it we might find well-authenticated examples of its existence as noted by competent observers in the lower animals.

M. Aruch, an instructor of veterinary surgery at Milan, has reported three interesting cases of

[1] Read before the Medical Section of the Buffalo Academy of Medicine.

hysteria occurring in the dog. The first, an affectionate, intelligent female dog, became moody because a baby was born in the family of the master. There developed dysphagia, polyuria, a capricious humor, an alteration of the voice (aphonia), and progressive paralysis of the legs. There was anesthesia, but no atrophy. The dog was given nux vomica and died in convulsions, but on autopsy no lesion was found in the nerve centers. The second case was that of a dog, eleven years old, domesticated, affectionate and intelligent. He developed convulsions, without the loss of consciousness, occasioned by the master scolding him. Since the first attack he was subject to the same attacks every time the master entered the house. The third case was that of a bull-terrier, two years old, which previously had a paraplegia of which he had been cured for over a year. His mistress procured a companion bitch and afterward the dog lost appetite and gaiety. There developed dysphagia without loss of either bladder or rectum function. The dog was cured by a separation from the companion dog.

Hegier recently has also described very good examples of hysteria in the lower animals. The first case was that of a kitten which was bitten in the back by a dog and at once became paralyzed. When seen by the author five or six weeks later, it moved the forelegs, but dragged the hind ones. The hind legs and the posterior third of the trunk on the ventral dorsal and lateral aspect were completely anesthetic. The tail also was paralyzed. The rectum and the bladder were not affected, however. A servant, desiring to test the fallibility of the saying that a cat possessed nine lives, threw the kitten from the window to the pavement below where it alighted on all four and ran away. It was permanently cured of a paralysis which had lasted two months. The second case was that of a canary, which had been much frightened and shocked by reason of seeing a cat attempting to get into its cage, became aphonic for a number of months, after which it sang again.

Concerning hysteria in the human species, it does not belong to any one time. Although the word "hysteria" does not occur in the Bible, it must certainly have been entertained there, and in the New Testament in which are recorded so many allusions to the miracles performed by the Nazarine, in the light of our present knowledge we believe that hysteria must then have existed. The Greek derivation of the word hysteria, meaning a morbid condition having its seat in the uterus, leads us to the belief that the Greeks must have known much of this affection, and it is a curious fact that for nearly two thousand years the idea was prevalent that the uterus was the seat. This was entertained by Hippocrates, Plato, Galen and even up to Sydenham's and later Charcot's time. It shows that during this time it was most seen in the female and this fact present statistics also verify. It was common in Sydenham's day and in Cromwell's time, but many disorders no longer considered belonging to this disease were mentioned.

There are certain etiologic factors, classified by Gilles de la Tourette, which if allowed to play a rôle will overwhelm the individual and will cause definite symptoms of hysteria to appear in any race be it Caucasian, Mongolian, American, Ethiopian or Malayan.

1. (*a*) Influences of the emotions, including moral passions, such as disappointment, anger; (*b*) influences of education, a higher civilization being conducive to the disease; (*c*) religion, with its furors and frenzies.

2. Traumatism, physical and mental; the traumatic neuroses of the Germans.

3. General diseases, typhoid, pneumonia, scarlatina, tuberculosis, grip, rheumatism, diabetes mellitus, malaria, syphilis and chlorosis.

4. Influence of the sexual organs; as the term implies, the uterus was supposed to be the seat, but, as Charcot later showed, the ovaries seem to be a factor also.

5. Influence of intoxications, lead, alcohol, mercury, sulphur, carbon, and tobacco. The effects of chloroform, ether, morphine, and lastly ptomains.

From the above classification we note that there are two factors, the physical and the psychological. The psychological factor is very important in hysteria, and is in fact dependent upon the physical condition of the individual. As an example we often see hysterical phenomena in those suffering from anemia and auto-intoxication of phthisis, or the physical traumatism in producing the traumatic neuroses of hysteria. Here the physical injury is also accompanied by the psychical insult.

If we are then to consider a racial factor in this disease, we must study the emotions, temperament, surroundings and habits of the race or nation, all of which are referable to their history and civilization.

Hysteria is almost unknown in the savage and barbarous states, but, as Féré says, in the less cultured races where fear, superstition, and a tendency to immitation are seen under their most primitive forms, hysteria is often encountered in epidemics. The savages of our own time, as will be shown later, reproduce the strange scenes which were so frequently seen in Europe during the Middle Ages, namely the dances of Saint Guy in Luxemburg.

In ancient times, and even now among the savage tribes of Africa, if a nation or tribe were conquered, little heed was given to the personal feelings of the subjected. In Rome the prisoners were led captives by the conquering host. They were jeered, scorned, beaten, and led into slavery. Was not this treatment indelibly written upon their higher psychical beings, and are not there many to-day bearing the effects of the ill treatment of their progenitors?

De la Tourette states that all races are subject to the disease, and among the Caucasian race the Israelite gives proportionally the largest number. M. Raymond states that in Warsaw, Poland, mas-

culine and feminine hysteria is common and most frequently encountered among the Israelites. In Europe it is seen as well in Finland as in the islands of the Mediterranean, and among the nations it is seen more in Russia and France than among the Germans and English. The national temperament must, therefore, also be a factor, as well as the social and political conditions.

The Jew in Europe and more especially in Poland and Russia is, as already stated, very liable to hysteria. Let us analyze, if possible, the cause. The Jew has always shown a fertile mentality. He was the writer and transcriber for all times. He translated from Hebrew to Arabic, Greek, and Latin. The most esteemed and most despised of all races, now enjoying a golden era of peace and happiness, then suffering the greatest oppression and persecution, becoming but the chattels of those inferior in intellect and morals. Numerically weak, and isolated, he could not physically take up the gauntlet and strike back the oppressor. Denied the privilege of travel, heavily burdened with taxes, shut up in the ill-ventilated ghettos, excluded from trades and professions, their physical sufferings were great, but their mental sufferings were greater.

The religion of the Jew does not allow his intermarriage with the Gentile. The laws of the Middle Ages did not allow a free interchange of this people, and marriages were not only entered in among the same people, but between near relatives, cousins, nephew and aunt, niece and uncle, etc.; so we have added to other causes the element of consanguineous marriages in production of hysteria. It being easily simulated, hysteria was contagious to the Jew thus restricted. The present generation of Jews, although in some countries, as in America, little persecuted, shows the stigmata of this disease because of the sufferings of their ancestors. It has then been transmitted by heredity in the sense that the child may learn to simulate or imitate the disease from the parent, usually the mother. In European countries, namely, Russo-Poland, Galicia, Roumania, Servia and Bulgaria, where religious tolerance is not enjoyed and where persecution and oppression are common, the Jew is markedly hysterical, and therefore in this country we find hysteria more common in the recently emigrated and especially from those countries where they are most persecuted.

Those who have visited the foreign cities have seen the patriarchal Jew. He is not unknown in our larger cities. Denied the education of the State schools, he has learned from the Rabbi in the dimly lighted and poorly ventilated schoolroom, to interpret the Talmud and mourns and bemoans the destruction of his Jerusalem. Despised, hoping in vain with a sturdy faith, reading of the grandeur of his ancestors, and comparing his present sordid lot have made an impression on him, which if you doubt is only verified by looking at the physiognomy of the Russo-Polish or Galician Jew of to-day—a Semitic feature with a ghetto expression. Prof. Kraus describes a peculiar type of Jew called the "Juif errant," a peculiar, rather hopeless individual who wanders over Europe from neurological clinic to neurological clinic. He often has a grave form of hysteria. In Kraft-Ebing's clinic at Vienna there was a good example of this type of Jew who suffered from astasia-abasia. It would be indeed surprising to us if these unceasing persecutions through periods of centuries should not have had their effect upon this people. It was not of short duration, but a continuous oppression, and in this regard they have suffered mental tortures as no other people in history.

From the German point of view the Latin race is to be regarded as hysterical. The Slav is also considered very hysterical. This is also to be attributed to his condition of serfdom.

Unlike the continued exciting causes which have existed to make hysteria and other nervous diseases frequent among the Israelites, there are conditions which give rise to epidemics of this disorder. The religious furors have affected many races and peoples, but from this the Jew seems to have been free. I allude again to the St. Guy's dance of Luxemburg where the hopping became contagious and the entire community was affected. The same may be said of people less civilized, as shown by the snake dances of the Indians, and the weird dances of the Dervishes.

Witchcraftery is based on superstition and religion. It is based upon a hysterical background and, though fortunately of the past, may still occasionally be seen in the ignorant lower classes and among the savage blacks of Africa. It apparently had its origin in Germany and was of three degrees as follows: (1) Man renounced God and went over to the devil offering an oath of allegiance; this was the method of witches; or (2) the devil took possession of the man during life converting him into one possessed; or (3) man might make a compact of mutual obligation, assigning his soul to the devil.

In 1484 to 1492 there was a wholesale burning of witches, and it continued well until the eighteenth century. Religion, so outrageously abused by the clergy who invariably were inquisitors (and as each inquisitor received a fee for every witch convicted, there is no wonder that there was so many accusations), the trial of witches was carried on against poor cracked-brain creatures (demomaniacs). Many of those supposed to be possessed must certainly have had the stigmata of hysteria, for, as Féré says, undoubtedly hysterical anesthesias held the first place among the marks of the devil.

In England witchcraftery was made a capital offense by statute of Queen Eliazbeth in 1562, and between 1640-1644 there were 3,000 legal executions. When the Puritans came to this country to escape their religious oppressions, they brought with them seeds and culture-ground of a psychological conditions which made the Salem witchcraftery possible.

As atavistic tendencies may slumber for generations only to rise in some future day under some other guise and in more resplendent garb, so we of to-day are not surprised that in that same New England, among the progeny of believers in witchcraft, there should arise from the ashes of a hopeless delusion another manifestation of a religious furor, hysterical in nature, but garbed in more alluring and inviting foliage, but nevertheless just as delusory and subject to a similar end, namely, Christian science.

In studying the black race we must go first to Africa. They are found in a wild and savage state, superstitious, living in tribes, each with its chief. Their religious belief was filled with superstitions; no evil occurred but was the work of some malignant spirit, and because of their belief, like more civilized communities, they devised charms and amulets. Witchcraft was common. Those accused were tortured and often buried alive, or underwent tortures of ordeal from which if they survived they were free from the evil spirit. The natural temperament of the negro is emotional. As Booker Washington aptly remarked, the negro, unlike other emigrants who came to this country, had the advantage of having his passage paid, but the horrors of that frightful journey across the high seas in the slave ships, so admirably described by Spears (*Scribner's Magazine*, Aug. and Sept., Oct., 1900), like the persecution of the Jews must have left indelibly impressed a psychical trauma which has been transmitted to the negro of the slavery days, and in a lesser sense to the generation following the emancipation.

Although Hammond says that hysteria was almost unknown during the slave period, May strongly contradicts this assertion, for he found the most typical cases of hysteria in the negro during religious excitement and these scenes were very common during slave time. The statistics of hysteria among the negro are very difficult to obtain. There can be no doubt that it manifests itself very frequently in the religious excitement attending revival meetings. It is frequent among Hottentot women of the Cape and in Abyssinia. Retourgeon of Brazil has seen it among the children of slaves, and very frequently among half breeds. In hospital work it is occasionally seen among the females. In order to obtain a better knowledge from those who have seen many negroes, I addressed letters of inquiry to Drs. Shadd and Revburn of Washington. Dr. Daniel Williams of Chicago, and Drs. Osler and Thomas of Baltimore, and from answers received from these gentlemen am inclined to believe that the negro is as subject to hysteria as the white man with the same intelligence, education and environment. It is more frequently seen in the mulattoes and also in the descendants of slaves, and less in the illiterate than in the more civilized.

The Indian is supposedly the first inhabitant found here by the settlers. They lived a foraging life, like other primitive and savage people, their beliefs were full of superstition. Many of their superstitious rites were accompanied by undoubted hysterical seizures and manifestations which resembled those of the Middle Ages (St. Guy's dance).

Dr. Charles Buchanan, a physician who has had much experience among the Indians at the Tulalip Indian Agency in the State of Washington, writes me of a quasi-religious, quasi-medical sect or cult of Indians, peculiar to Puget Sound, termed the Shakers, which sect, according to the writer, represents the aboriginal idea of Christian science. Unless through their superstitions they became imbued by a religious furor which became epidemic, few individual cases of hysteria were noted. It would seem that the squaw, who in reality was regarded as the beast of burden, should have become hysterical, but the many cases in which the parturient woman isolated herself a week before and a week after labor, with absolutely no other care or attention than she could bestow upon herself, would certainly disprove the above statement.

We can, therefore, say that individual cases of hysteria could not have been common to the Aborigines until the pioneer settlers, as an advance guard of civilization, commenced the benevolent assimilation and taught the Indian much of the good, but more of the vices of the civilization then extant. We have previously referred to the effects of alcohol as an exciting cause of this disease and see an excellent example of its effects in the deterioration of the American race, physically and morally, so much so that the Government has had to enact laws prohibiting, under a penalty of fine and imprisonment, the sale of any liquors to Indians. As the Indian becomes more and more civilized, he becomes more subject to the disease, for education conduces to a larger occurrence of hysterical manifestations. Dr. A. D. Lake, physician to the Thomas Asylum for Indians, situated in the Cattaraugus Reservation, near Gowanda, N. Y., has observed the Indians of this State for twenty-five years. In his earlier acquaintance with them the disease was unknown, but in the past ten years he has frequently seen both neurasthenia and hysteria. They seem to characterize themselves among the Indian, especially among the girls, in some of whom he has seen convulsions, but often in the manifestation of a moral perversion. No other reason can be assigned for the production of this disease among the Indians than in the change which civilization has procured in their habits and mode of life.

As yet I have not been able to ascertain much concerning the frequency of hysteria among the Chinese, but I do not believe that it is very frequent. Hirsch states that Hindoo women are not much disposed to hysteria, but that the European races living in Hindoostan are as much disposed to the disease as those resident in European countries.

We have, therefore, come to the conclusion that hysteria is seen among all people and in all countries, and the fact that it affects certain races

more often than others, like the Jewish and the Latin races, may be attributed to causes of environment rather than inherent qualities of a race. Heredity plays a rôle only in that the child may learn to imitate certain traits of its parent, the environments and habits remaining the same.

In conclusion we must not forget the hysterical background which may be an epiphenomenon in certain organic diseases, in certain races such as the Slav, Latin, Israelite, nor, on the other hand, to slight the fact that, though symptoms of hysteria are well marked, as they usually are among Russo-Polish women, they may at the same time be suffering from organic disease.

Better therapeutic results will therefore often be obtained among the susceptible races, or those in which hysteria is most common, by drugs, suggestion and mechanical means of treatment directed against a latent hysterical condition in addition to treatment for organic disease if it be present.

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THE DRUG HABIT; ITS CAUSE AND RESTRICTION.[1]

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NEXT to alcohol, as a poison to the nervous system in common use, stands opium with its derivatives, especially morphine. This most useful and very efficient drug for relief from pain is likewise a most fruitful cause of relentless physical and mental suffering.

The effects of the poppy, when introduced into the human body, have been in vogue and utilized for many centuries, but the subcutaneous use of morphine was not known until the middle of the past century and but sparingly used until the great body of physicians now in actual practice began their medical career. The oriental nations used the crude preparations of the poppy plant among all classes as a source of pleasurable excitement. Not however, until recent years has the drug found common favor among Caucasians for its stimulating effects to the intellectual powers. The English and Americans who, prior to the present generation, became devotees to opium were men of letters whose intelligence directed them to its use for the mental stimuli produced. The baneful effects of the opium habit were not pronounced until the process of chemical science gave us the active principle morphine, and resort was made to its use hypodermatically. So widespread is this abuse, especially among the cultured classes, that present conditions are truly alarming.

It was primarily a disease of luxury, for the drug is relatively expensive and, moreover, only those who have the intelligence to know its effects are likely to initiate its use. There are more than one hundred thousand known chronic users of morphine in this country, and of these no one class furnish so large a per cent. as physicians. The rate of increase among its votaries far exceeds our growth in population. Physical and mental degradation from cocaine abuse has developed so rapidly that even some of the large cities are striving to legislate it away from the public.

When chemistry was forced to give up this useful alkaloid for rightful use, intelligent men, many of whom were and are physicians, seized the opportunity, under guise of relief for human suffering, of placing all manner of erythroxylon preparations for promiscuous administrations by the public. The coal-tar preparations in their myriad combinations are habit-forming drugs, causing more baneful than beneficial results. Slaves to the chloral habit are not a few among persons whose vocations cause insomnia, yet whose intelligence and conscientious convictions restrain them from using or administering any extract from the poppy. Another class, esteeming themselves still more conservative, seek the seductive influence of chloroform or ether to ease their neuritic pain and soothe their mental unrest. I name but a few of the common habit-forming drugs, regarding it as presumption on the intelligence of those who compose this Society for me to do more than direct your attention anew to the prevalence and growth of the drug habit and solicit your intelligent cooperation to a rational solution of its cause and restriction.

It is not only true that physicians, more than any other class, are the slaves to narcotics, but it is a fact that those who do nearly all their work in a country practice furnish the larger per centage of morphine users. Modern civilization either produces more and greater aches and pains, or else the present generation is less tolerant. The present requirements of business and social conditions increase the demand and lessen the resisting power against narcotics. An imperfect nervous system, craving stimulation or narcotization, is no less a physical defect that the imperfect eye, yet what person would tolerate for a day even a treatment to the eye, the ultimate results of which he well knows are injurious. The query then is, Why do persons of equal or greater intelligence permit the use of stimulation or sedation to the nervous system, well aware that mental obliquity is added to physical derangement by the continuance of such drugs?

Immediate relief for acute suffering and temporary benefit in chronic painful conditions is a strong argument by the patient, but unless possessed of the intelligence directing him how and what to use for relief, he will not initiate its use. Once instructed in the successful application of a remedy, without the additional information that relief came by the use of a habit-forming drug, invites its repetition. Responsibility is traceable,

[1] Read before the Nebraska State Medical Society.

then, to the intelligence placing the remedy at the disposal of all who apply, if the user has not had equal instruction as to its baneful effects.

The cough syrups and lozenges, catarrh powders and kola drinks when not supplied to *all* by the druggist and soda-fountain vendor can be had at the grocer's, with printed instructions extoling their virtues. Progress in the science and art of compounding drugs enables pharmaceutical houses to exhibit myriads of preparaionts, many of which are very harmful to use. These concerns, founded for purely business ends, use numerous avenues of introduction for the consumption of their products. They are represented by shrewd managers who know well the advantages gained by endorsement from medical men. The general public cannot exercise intelligent discrimination, but, trusting to the "written testimonial of the doctors," they subsequently discover the deception. In this country the ease with which the title "doctor" is acquired and its indiscriminate application greatly lessen the ennobling and beneficial influences rightfully belonging to the thousands of able medical men past and present, whose knowledge, wisdom and integrity, concerning the physical and mental welfare of the human race, surpass every other profession. A more liberal education of the people is a commendable suggestion, but it will serve only as a little greater safeguard against dishonesty among the better educated in science and art. We take high place as one of the learned professions, yet within our ranks is found the largest proportion of chronic drug-users. They are among us, but not of us.

The best evidence possible confirming the high value of our currency is seen in the frequent attempts at counterfeiting. The multiplied pathies, like parasites, are but an excrescence on the great body of honest workers in our profession. It sometimes happens that a person possessing the mental, educational and legal requirements for practising the healing art, becomes infected with parasites of popularity and commerce which completely mask all conscientious appreciation of the patient's subsequent condition. The exceptions verify the rule and we must look for relief to the great body of men within our ranks, whose integrity of character cannot under any circumstances be purchased.

Education is demanded, but character is imperative. Wholesome legislation is good but those in our ranks who rise to the privilege of our opportunities in not only relieving but preventing disease are the men who ennoble our profession, and are infinitely superior as public benefactors to the legislators who enact or the chief executive who endorses class legislation. The intellect may see an evil and its remedy, but without the man of character in control such knowledge is harmful.

Not a few physicians, zealous to accomplish cures, overmedicate, and, finding other patients surfeited by the drug habit withhold the exercise of equal therapeutic measures for their liberation. It sometimes happens, too, that the busy practitioner, wishing to expedite the interview with some undesirable patient, suggests an efficient remedy, but puts no restriction on its continued use. This is more frequent in chronic neuritic patients, not so ill but that they can go about their work and make periodical visits to see the doctor. We are all familiar with chronic drug-users who trace their slavery directly to the advice of some doctor, who we well know is a competent and thoroughly conscientious physician, yet in an unguarded moment gave unwise counsel. I am not, however, unmindful of the fact that such accusations are many times more numerous than the truth warrants; what everybody says is usually not true.

In Colorado the medical profession has shown what a united and continuous effort in politics can do; and I feel sure we will not neglect our privilege in using the ballot advisably in Nebraska should our future suffrage be sought by an aspiring executive who delights in ignoring requests from the best thought in our profession. Wholesome legislation is desirable for the protection of the innocent, but we cannot legislate into man the character that impels him, with or without law, to right actions toward himself or his fellow men. The *man* in medicine, as in every vocation in life, is controlled by motives higher than civil law. Medicine is an exacting and jealous mistress. The public demands much of us for scant reward. If we would rise to the opportunities of our profession for relief of human suffering, we must daily live the life, exhort the precept, and practise the truth, which we as medical men know concerning drugs and their use, for liberating, rather than enslaving human beings.

TWO FATAL CASES IN INFANTS—PEMPHIGUS AND ERYSIPELAS.[1]

BY FRANK S. MEARA, PH.D., M.D.,
OF NEW YORK.

IN the days of good Queen Anne who was herself possessed of no small medical interest, inasmuch as she was the mother of eighteen children and delighted the midwives of her time with regal perquisites, and whose bloated effigy in Westminster Abby bespeaks the strain that was put upon the royal kidneys, Addison wrote in the *Spectator* that the physicians of his time reminded him of Cæsar's description of the British Army, "Some of them slay from chariots and some on foot," and further, "We may lay it down as a maxim that when a nation abounds in physicians it grows thin of people"; and so I fear if Addison were present to-night to hear the title of my paper, he would exclaim with another outburst of classicism, "tempora mutantur, sed medici nunquam."

But long before this caustic wit had launched his shafts of ridicule against our noble body, a

[1] Read before the Quiz Medical Society.

man of far keener perspicuity and higher literary attainment, not without humor, had written in the "Canterbury Tales" these lines:

"And when that Nature will not werke
"Farewell Phisick; go bear the man to kircke,"

and with this kindly explanation of our results, from the father of English verse, I beg your indulgence in the citation of these two cases.

On August 16, 1898, I was called to see a baby, seven months old, whose condition had on the morning of that day first given the parents cause for alarm. The history of the parents was negative; both of them were in excellent health. The only interesting fact about them was that the father was a butcher. There were two other children in the family—a little boy of five and a girl of three, both healthy. The year before both of these children had been under treatment by me for impetigo contagiosa, the disease being especially well developed in the little girl. This had been contracted in a house, a summer cottage, occupied during the preceding year by a Portuguese family, whose children had been afflicted in common with many school children by a skin eruption, known in local parlance as the "Portuguese itch."

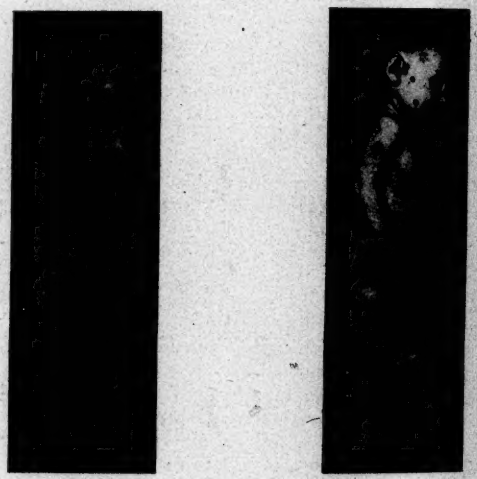
The baby was a beautifully healthy specimen of infancy, still on the breast, and had never been ill. For four or five days the child had been ailing, but no history of any significance could be obtained, except that the day before the mother had eaten liberally of lobsters and then partaken of ice-cream, from which delectable ménu she had suffered no bad effects. The child had grown suddenly worse that night and its peculiar appearance had aroused the parents in the early morning to the advisability of medical attendance. The parents were intelligent, but had never had any experience with sickness in children.

On my arrival the appearance of the child was alarming. The baby was stuporous, the eyes fixed and staring, the face livid, the lips cyanotic, the skin cold, the muscles of the hands and mouth twitching. From the feeling of the skin one would never suspect fever and yet the temperature taken at once in the axilla registered 105° F. An examination of the chest revealed a few râles in the right lung.

A certain amount of fever, bacteriologists tell us, is probably a favorable reaction, diminishing the virulence of the toxins that may be circulating in the blood, and 105° F. is not excessive in a child; but to me at that moment it seemed that the vital centers were being overwhelmed and that the fever *per se* was in part responsible for it. At any rate, after a hypodermic of digitalin, gr. $^1/_{1000}$, and a few drops of whisky by the mouth, I put the child into a cold pack until its temperature was 101° F. During the application of the pack I made an abortive attempt to wash out its stomach and gave large saline enemas with but little result, so far as a movement was concerned. This was at 10 A.M. The child on removal from the pack improved at once, a glow coming to the skin, the twitching disappearing, the pulse improving, and it soon sank into a quiet sleep. At 3 P.M., five hours later, the temperature had gone up to 104° F., the lips were again cyanotic and the baby was crying loudly, apparently from pain. Numerous râles were heard in both lungs, due to edema from failing circulation. Again the pack was given with stimulants until the temperature was 100° F. and again the condition markedly improved only to be followed by a gradual rise.

While giving the pack I noticed a vesiculopustular eruption the size of a dime on the left buttock that looked like a patch of impetigo and which at that time was considered to be such. That patch was the beginning of one of the most interesting features of the case.

The next day, inasmuch as the condition of the child seemed dependent on the temperature, I ordered the nurse to give a pack whenever the thermometer registered 104° F. or above. This



day it received but one and with the same satisfactory result.

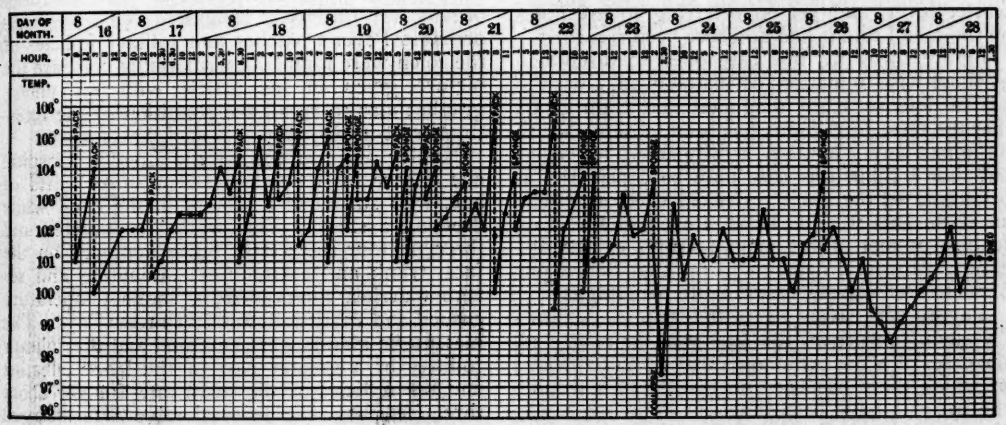
I will not go over daily details of the treatment, but will say in brief that during the child's illness of thirteen days it received twenty-one packs or sponges, at the intervals and with the results shown by the temperature chart.

The bowels were obstinately constipated and responded only after a liberal administration of calomel and castor oil and the use of suppositories. Fearing the possibility of some disorder of the mother's milk, I put the child on a modified milk mixture of fats, 3½; carbohydrates, 5; proteids, 1¾.

On August 20th the eruption began to force itself on my attention. It had spread from the initial focus over a great part of the buttock. It now showed an intensely reddened area, a little bluish in the center, from which the epidermis peeled off as in a sunburn; there was no thicken-

ing of the dermis, no ulceration and no pustulation.

The next morning, the 21st, the temperature rose to 105.4° F. and râles appeared in the chest. On the 22d the eruption appeared on the other buttock and on the vulva, commencing in each place as an isolated spot. Spots apeared on the nose on one ear and on a toe; later spots appeared on an arm, the face, thighs, lumbar region and back of the neck. On the trunk and thighs the spots spread over considerable areas, the epidermis peeling off in great flakes; no true vesicles were seen here, because, I suppose, of the maceration caused by the frequent packs. On the face, arm, and toe the spots were limited, the size of small coins, papular at first, then vesicular, and desiccated under the application of drying powders. The photographs give you some idea of its distribution. The light and shadow effects convey the impression of ulceration, which nowhere occurred.



Case 1.

On the 22d there began a restless twitching of the head, opening and shutting of the mouth and occasional internal strabismus, the first signs of meningeal involvement. The evening temperature was about 105.6° F. and râles were heard in both chests. On the 23d the stools suddenly became very numerous, but of good color. The nurse reported that about noon the child seemed to go into collapse, but revived on stimulation with whisky. It had several paroxysms of hard coughing, but the lungs were clear and no cerebral symptoms were manifest.

The next morning, at 2 A.M., it had another sinking spell; cerebral symptoms now became marked; the head was drawn back; the muscles of the neck were tense; at times internal strabismus occurred, again internal strabismus on one side and external on the other, or, more properly speaking, conjugate deviation. The arms were rigid at the shoulder, the hands simulating the *"main en griffe,"* thumbs flexed into the palms, elbows flexed and hands raised toward the head. It continually uttered a whine that at times became a sharp cry. It seemed indifferent to handling, but took its food well. The nurse reports six or seven slight convulsions.

The next day the cerebral symptoms abated, though retraction and rigidity persisted. The lungs were clear; the bowels under control. On the 26th there were convulsive movements; the lungs clear, but the breathing feeble.

On the 27th the morning temperature was normal; the stools were horribly offensive and light clay colored; the child evinced some abdominal pain. There was no strabismus nor convulsions, but the left pupil was dilated much more than the right and the left side of the face drooped. The tongue and lips were dry. There were violent coughing spells at times and the nurse reported that she wiped a few flecks of blood from its mouth. On the 28th it suffered a sudden collapse in the morning, but revived on stimulants. The cerebral symptoms were less marked. The next morning at 4:30 the child died.

I was fortunate in obtaining an autopsy on this child, but was not allowed to remove the brain or cord. The baby was still in good flesh, as the photographs show. The heart was normal. The lungs showed areas of congestion along the posterior borders. The stomach was negative, but the small intestine showed patches of congestion, three or four in number and widely separated. The mesenteric vessels near the patches were deeply congested. In the caput coli and the two or three inches of the large intestine adjacent to it there was an area of marked congestion in which were sharply circumscribed petechia or extravasations, varying in size from that of a pin-head to that of a pea. Two or three more such patches occurred at intervals along the large intestine. The liver, spleen and kidneys were negative on gross examination.

Dr. Vanderpoel Adriance kindly examined sections from the lungs and reported scattered

patches of consolidation of the type of bronchopneumonia. As I was far removed from any medical center it was impossible for me to obtain cultures from the lesions and blood before death or from the tissues after death.

The diagnosis, then, was acute pemphigus, acute enterocolitis, bronchopneumonia and acute cerebral meningitis.

A review of one's own cases is a wholesome, but often a mortifying procedure, for it emphasizes our sins of omission as well as commission. I never feel how inadequately I have observed my cases until I review my notes, nor how inadequately I have noted my observations until my attention has been called to the fact by some one else. For example, I read an article the other day in the *American Journal of Medical Sciences* by Da Costa, on "Erythematous and Measly Rashes in Typhoid Fever" that recalled a case I had last summer of an erythema in a typhoid case. I remember, too, of remarking to the nurse that one might think our patient had scarlet fever, and yet on referring to my notes on the case I find it had nowhere been recorded.

Before throwing this case open to discussion by those wise in matters dermatological, I wish to say in defense of my diagnosis that I am aware that the term pemphigus has been loosely used to designate any condition accompanied by bullæ, but that I think this case may be considered as belonging to the more restricted class in which, as Hyde puts it, "the bullæ are either the main feature or one of the main features of the disease." Morover, it seems to me that this is one of that rarer variety, called acute pemphigus.

Payne, who treats of pemphigus in Allbutt's "System," mentions the fact that in nearly all the cases of acute pemphigus that he has collected in which there has been no history of a wound, the patients have been butchers or in some way connected with animals. It is an interesting coincidence that my case should have come under the same category. He believes that there is a specific inoculable disease after the type of pemphigus. In five cases cited by four different observers a diplococcus, which has been named the diplococcus of Demme, was isolated from the bullæ and appeared to be specific. He says the disease has the appearance of a septicemia, beginning with chills and a rigor and a rise of temperature. The eruption begins on one part of the body, but spreads rapidly and may cover nearly the whole surface. As the eruption spreads the general symptoms are aggravated. Cerebral excitement and delirium are often present, and may give place to profound coma. The temperature may rise above 104° F. The attack is often fatal in from one to five weeks.

In the *Deutscher Archiv für klinische Medicin*, March 23, 1899, Köhler cites a case of acute pemphigus in a child of six months, which was characterized by a sudden onset with high fever and the appearance of blisters over the body on the following morning, some of them as large as a quarter. On the following day new crops of blisters appeared from the contents of which were obtained the *staphylococcus pyogenes aureus* and a diplococcus resembling the organism of Niesser (Demme?). The child died with the signs of a severe bronchitis. Two sisters, who had care of the child, were attacked, and four more cases developed among those intimately associated with the family. He speaks of the cases as being characterized by the appearance of blebs on a perfectly sound skin, healing in one part and appearing in another. This was a feature in my own case which I fear I have not sufficiently emphasized. These new eruptions were associated with exacerbations and remissions of fever. The disease lasted from two to four weeks, having the course of an acute exanthem.

Dr. L. Emmett Holt reports in the *New York Medical Journal*, February 3, 1898, a case of acute pemphigus neonatorum proving fatal in a few days, in the vesicles of which was found the *staphylococcus pyogenes aureus*. All the deep organs were intensely congested and some hemorrhagic Peyer's patches and solitary follicles of the colon were found. I wish you to compare the picture given in his article with my photographs; also to recall the condition of the intestinal tract in my case.

Hadley and Bullock of the London Hospital cite a case of a butcher, twenty-three years of age, who sustained a wound in the hand while dressing a sheep. This wound suppurated and three or four days later bullæ appeared on the face, trunk and extremities. Vomiting and severe diarrhea intervened; a septic temperature ensued and death followed in thirteen days. The mesenteric glands were enlarged and the solitary follicles of a greater part of the large intestine and the follicles of the small intestine for about three feet above the ileocecal valve were enlarged and congested. A diplococcus, differing from any well-known pathogenic coccus, was obtained from the vesicles.

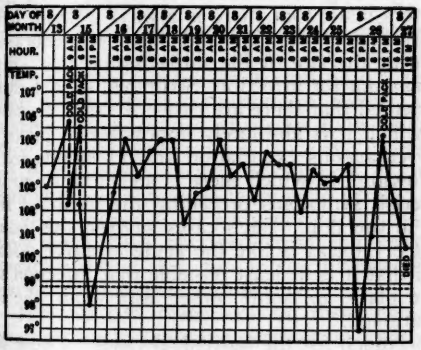
Before considering the probable character and mode of infection in this case, I will invite your attention to the second case, that of erysipelas.

August 13, 1899, I was called to see a baby of three months, previously perfectly healthy and of healthy parentage. The child was on the breast and splendidly nourished. The mother reported that during the preceding twenty-four hours it had been ailing and that that morning it had vomited and shown some twitching of the limbs. The examination was negative. Temperature was 103° F. in the rectum. Deeming it to be but some slight gastro-enteric disturbance so common among infants during the hot season, I ordered it a cathartic and small doses of aconite. The next day it appeared so much better that the parents did not consider it necessary to call me, but on the following morning it was seen to be worse. When I saw the child it was very feverish, the thermometer registering 105.8° F. The stools were green. I washed out the stomach, obtaining only a little mucus

and some curds of milk. The colon was irrigated and two stools better in character followed. These procedures were followed by a cold pack, until the temperature was 102.5° F. The child seemed much more comfortable and quiet after the pack. Castor oil was then ordered to clear out the upper bowel. At 6 P.M. the temperature was again 105.5° F. and again a pack was given until the temperature was below 102.5° F. A little red spot had appeared on the cheek, under the left eye, that looked like a mosquito-bite and did not impress me as being of much consequence, but the next day, the 16th, this little spot had become a brawny, red swelling, and had spread over the bridge of the nose and under the right eye. The evening temperature went up to 105° F.

Feeling satisfied of the true character of the trouble, I ordered an application of a 50 per cent. ichthyol ointment to the inflamed area and for the bowels an intestinal antiseptic (bichloride and salol), as the stools were still unsatisfactory.

The next day the inflammation spread somewhat, but on the whole the child was more comfortable. I ordered the child taken from the breast, the breasts pumped and the child fed with this milk and barley-water, fearing lest the mother might become infected, as she herself had had erysipelas when a child, and I believe it is generally stated that those who have once had erysipelas are rendered more susceptible to it after a brief period of immunity. The next day more of the right cheek was involved, and the skin of the neck invaded. The face now had the typical appearance of a severe erysipelas.



Case 2.

At this time, on the advice of Dr. Alfred Hand, I tried the time-honored treatment of iron. On the 19th the area of inflammation seemed softer and the edge fading. I should add here that the lungs had remained clear and the heart of good force. Moreover, the child was taking its food well.

On the 21st the face was much improved, but a diffuse blush extended down the trunk and arms. This was discouraging, for it showed that I had to do with an erysipelas migrans which is prone to last for some time and in so young an infant must eventually exhaust. W. Watson Cheyne says that erysipelas in infants tends to assume this wandering form.

The next day the face showed still more improvement and the redness was fading from the upper part of the chest and back, but the lower part of the back and arms were now invaded; this was not brawny as on the face.

On the 23d the erythema had spread over the buttocks, while the upper two-thirds of the trunk had become quite clear. Both arms were now involved in their entire extent, the upper clearing as the forearms were invaded.

Perhaps it would be well here to interrupt the description of the course of events to say a word about the character of the inflammation. It was not as severe on the trunk and limbs as on the face. In the former sites there was deep redness, but not much thickening nor edema. The advancing edge was always sharply defined. The redness disappeared momentarily under the pressure of the finger. On the face the inflammation was brawny and edematous, the swelling causing an obliteration of the features and complete closure of the eyes for a considerable time. The swelling involved the ears, the lower half of the forehead, both cheeks, the bridge of the nose, the upper lip and the chin but slightly. This curious exception of a general spread is noted by nearly all writers.

On the 24th the redness had nearly disappeared from the trunk, but had spread down the thighs and from the forearms to the hands.

On the 25th the inflammation had entirely disappeared from the face and trunk and almost entirely from the buttocks; it had quite gone, too, from the thighs and upper arms. Both forearms and hands were now severely inflamed, being swollen and brawny; the hands were puffed, like balls, and very tense. In spite of all this infection the child was still taking its food well, but the iron made it retch and it had to be discontinued.

The next day the inflammation was less on the arms and hands, but had now spread down the legs to the ankles. On this day, too, appeared a slight redness on the right shoulder and chest and patches of erythema appeared on the face and chest, but disappeared again in a short time. The vulva became swollen and edematous. This curious feature of the implication of the same part of the body a second time I find mentioned by Cheyne.

On the 27th the arms, legs, and vulva were better; the hands still swollen. The only parts of the entire body that had not been affected were the feet and scalp. The stools were now foul and frothy. The next morning the child died, thirteen days after the appearance of the skin lesion.

The treatment was the consistent use of ichthyol and the tincture of the chloride of iron, together with care of the bowels, baths for pyrexia and stimulation when needed. It was simply marvel-

ous to me how well the child stood this long siege and the involvement of an area of skin, which if burned to the second degree would have meant death in a short time.

As regards the treatment aimed at the condition itself, once could find justification for his procedures if he were to prescribe with his mental eyes shut, if he were content to take any of the drugs advised, for few conditions outside of diabetes and neuralgia have nurtured a more prolific formulary.

My own procedure was based on that in vogue at the time at the New York Hospital, namely, ichthyol which as a local antiseptic seemed rational, and, a deference to a time-honored empirical procedure, the administration of the tincture of the chloride of iron.

One feels a little timid about pointing the finger of scorn at empiricism, even in these days of therapeutic nihilism, when one is forced to recognize the value of such drugs as iodine, mercury, and arsenic, in the face of a lamentable paucity of facts concerning their *modus operandi.*

Warren of Boston in Dennis' Surgery recommends the use of ichthyol when strong antiseptics are not to be used and such was the case in hand.

Of local treatment, Osler says that ichthyol is at present much used, but perhaps as good an application as any is cold water, which was highly recommended by Hippocrates.

Watson Cheyne advises tepid sponging or cold baths for the hyperpyrexia. He endeavors to give new life to the failing custom of painting the advancing margin with iodine or silver nitrate, explaining that it increases the leucocytes and wards off the spread of the condition. In mild types this accumulation of leucocytes, he says, is characteristic, while ordinarily they offer no efficient barrier. Ziegler puts it nicely when he says, "they seem rather to limp after it."

A suggestion made by Fischer of St. Petersburg, quoted in the *Philadelphia Medical Journal* October 14, 1899, to use compresses of 85- to 95-per-cent. alcohol, in view of the reports of its efficacy in the inflammations caused by carbolic acid and its well-known antiseptic power, may have something in it. I simply mention this as among the newer methods outside the standard text-books.

As for systemic treatment, the use of the tincture of the chloride of iron is mentioned by all authorities and it is extremely interesting to observe the unanimity in their attitude toward it. They observe that which the newspapers of the day have made familiar to us, "a strict neutrality" —no enthusiasm, no condemnation.

There remains one other treatment that appeals to me strongly. In the *Lancet,* February 19, 1898, Magier reports a case of erysipelas, relapsing and developing a grave endocarditis, which was treated with antistreptococcus serum with immediate and satisfactory improvement, resulting in early recovery.

In the *Lancet,* June 24, 1899, Bond reports two cases of facial erysipelas treated successfully with antistreptococcus serum. If the streptococcus is responsible for this condition it certainly seems rational.

Now, is the ubiquitous *streptococcus pyogenes* responsible for erysipelas under the alias of *streptococcus erysipelatus?* It would be hard to determine from the literature.

Bacteriologists say "yea" and "nay." Authorities are always dogmatic, right or wrong. The clinicians in the meantime hesitate. Tyson in his new Practice emphasizes the similarity between the two germs without committing himself. W. Watson Cheyne, who writes the article on erysipelas in Allbutt's System, in discussing the two germs, leans toward the specificity of the *streptococcus erysipelatus.* He thinks the suppurative complications elsewhere are due to a mixed infection. Ziegler does not commit himself as to their identity. Osler speaks of the complications as being due to metastasis, that is, caused by the same germ. He also calls attention to its relation to the ordinary pus germ by the frequency of the small cutaneous abscesses in the face, forehead and scalp.

Regarding the mode of infection, while many writers insist that there is always a break in the continuity of the skin and mucous membrane at or near the site of the initial lesion that affords an antrum for infection, Strümpell says it cannot be denied that there are cases of facial erysipelas in which it is absolutely impossible to make out any cutaneous excoriation and (I emphasize the following) in which there is an initial stage with feverish symptoms preceding the localized trouble in the skin. Such cases suggest the thought that erysipelas is like the acute eruptive diseases and that it is at least possible that infection may take place in some other way than the one mentioned.

So much for the individual cases. I now wish to occupy a moment or two of your time in propounding a few questions which I hope will provoke a fruitful discussion.

What were the germs concerned in producing these two well-recognized pathological entities?

The past few years, and especially that period which for most of us measures our interest in medical matters, may be said to have witnessed the apotheosis of the micro-organism. Every clinical type of disease, that is, every complex of symptoms sufficiently well defined to be recognized as individual, and many more whose variations defie strict differentiation, have been dignified with names and titles, the possession of which, like property, being nine points of the law, they retain with wonderful pertinacity Each disease, so defined, was considered as worthy of its own germ and specificity ran riot as a natural result.

The reaction is already occurring and in a little while we shall in all probability be lending our earnest attention to the iconoclasts.

Those of you who have read or will read Hueppe's little book will appreciate what I mean. It is a plea against specificity in disease and

though extremely radical to those of us who are just feeling ourselves firm in these new beliefs, still is full of valuable suggestions and undoubtedly contains many just criticisms.

Is there a specific germ of erysipelas? Is there a specific germ of pemphigus? You have heard the evidence as quoted in this paper. If there are specific germs in these cases, where did they come from? No case of pemphigus had been known in that locality in the experiences of a practitioner whose professional work in those parts covers thirty-three years. The parents had never seen or heard of a similar case. If it is due to some germ associated with animals, then, of course, the father might have been the source of infection; if not, this specific germ must have led a saprophytic life for countless generations and then at its first introduction into the human body caused this highly virulent intoxication. Is it not strange it should have so rarely found a suitable host?

And the erysipelas? No case had occurred to my knowledge in the town in the past four years; none in that house at any time. What kind of an existence does it lead between its attacks upon the human body?

Now as for the latter, there is sufficient evidence to make it probable that it is identical with the *streptococcus pyogenes*, causing a manifestation under certain conditions of growth and resistance of the tissues which we know as erysipelas. The change in the virulence and morphology of germs under varying conditions of nutrition and environment is too familiar to detail.

The *staphylococcus pyogenes aureus* has again and again been obtained from the vesicles of pemphigus and that, too, in the absence of other germs of etiological significance.

May we not, then, look on these two conditions as due to the same germ or, at least, as due to one of the common pyogenic organisms, producing these apparently varied diseases, simply because of modified metabolism during their saprophytic existence?

Let us take an affirmative answer to this question as a working hypothesis. What was the mode of entrance and what determined the toxicity and nature of lesion provoked? In the case of the erysipelas, it may have been a minute abrasion in the neighborhood of the initial focus. In the pemphigus it may have been by a similar antrum or by way of or, indeed, originating from a patch of impetigo.

One other way has suggested itself to me. Could it have been from the alimentary canal? It has seemed to me that the gastro-intestinal tract has been in some manner responsible for these conditions. Gastro-intestinal disturbance was present in both; in one the autopsy showed a marked enterocolitis. Both began with symptoms of severe toxemia; forty-eight hours before the local lesion was seen at all in the erysipelas and equally long before the local manifestation was of sufficient importance to attract attention in the pemphigus. In both, in other words, the period was like an invasion of an acute exanthem.

Such symptoms as these children displayed in the early hours of their illness I have seen again and again in simple functional derangements of the bowels, which have been speedily terminated by a brisk purge, but in one case, five years ago, ending in death in twenty-four hours. This last case presented the picture of profound poisoning.

I believe the part taken by the bowel in all these cases was to furnish a toxic material that reduced the resistance of the tissues to a degree that afforded a suitable medium for germs that under normal conditions they resist.

This great subject of auto-intoxication, too little appreciated even yet, can hardly be approached here even in the briefest manner, but as the key-note of my theory hinges on it in these cases, I will simply recall to you two broad generalizations. Auto-intoxication may occur from the normal products of digestion when the functional integrity of the epithelium of the alimentary canal is impaired, or, at least, we know that such bodies as albumoses, peptones and some of the crystalline bodies are toxic when injected into the blood and, second, that auto-intoxication may occur from abnormally digested or fermented foodstuffs, producing toxins and ptomains.

So much for the causes that lower the resistance of the tissues; now for the germ. We know that the common pus organisms can be found in the mouth of healthy individuals and be compatible with continued good health; we know, also, that they are rarely absent from the healthy intestine (Welch). Even the bacillus coli communis can take on pathogenic activities under suitable conditions, as its isolated presence in suppurative foci shows. Cheesman and Meltzer's experiments, published in the *Journal of Experimental Medicine*, 1898, show nicely how these germs can cause suppuration in tissues, when injured, that in normal states easily resist them, and how eagerly the staphylococci and streptococci take advantage of such opportunities is shown by their presence in such lesions as dysenteries and appendicitis.

Even as I write the *Lancet* is publishing the Goulstonian lectures, by P. Horton-Smith on the "Typhoid Bacillus and Typhoid Fever," in which is brought out most strongly the offensive alliance of these germs of the intestine and how the virulency of each in the presence of the other is increased, if once the barriers of defense on the part of the organism are let down.

Already this paper has become inordinately long. I hope you see the drift of my ideas—that most varied, common and uncommon manifestations of infection may arise in the body from identical or similar germs, always present, not to be sought after in mysterious places, seizing their opportunity when some slight slip occurs in the body's functions.

If this theory be in any measure true, how important become our efforts at prophylaxis and early consideration of the slight gastro-intestinal disturbances.

400 West End Avenue.

MEDICAL PROGRESS.

Obstruction of Bowels.—Intussusception occurs in almost half of the cases, and of these less than half form a tumor, writes H. C. DALTON (*St. Louis Med. Rev.*, Aug. 10, 1901). In these cases the bowels may continue to move, especially tending to looseness in the ileocecal or colic variety. Speaking broadly, intussusception occurs in early life, volvulus in middle life, gallstones in old age, while bands, adhesions, etc., occur at any age. In intussusception the pain, vomiting and tenesmus are almost constant symptoms, but they may vary greatly in degree. In volvulus a rapid ballooning of the abdomen rapidly follows the onset of pain, vomiting is often absent, the pulse weak and rapid, temperature subnormal. On account of the distention there is dyspnea. In bowel obstruction we must withhold all opiates or purgatives, for the former obscure diagnostic symptoms, and the latter, by adding to the bowel, peristalsis, aggravate the condition, induce vomiting and increase the shock. If hypnotics, warm applications, and high rectal injections do not relieve after a few hours, the wisest procedure is abdominal section.

Alcohol and the Neurons.—Observations along this line are important in that modifications of the central nervous system occasion alterations in respiration, circulation and temperature range. ARMAND KLEEFELD (*Jour. de Physiol. et Path. Générale*, July, 1901) has carried on two series of experimental observations. In the first he trephined the parietal region of a rabbit's skull under antiseptic precautions and without the use of morphine, ether or chloroform. He then closed the wound superficially and after leaving the animal for at rest two or three days injected into the jugular vein 100 c.c. of a 7-per-cent. aqueous alcoholic solution. After two or three minutes he raised a portion of the cerebral cortex. This was fixed in a mixture of potassium bichromate and osmic acid and submitted to the rapid manipulation of Golgi. In the second series he introduced 100 c.c. of a 15-per-cent. alcoholic solution into the stomach of rabbits and made similar examination of the cerebral tissue. Here the pathological changes were increased in amount over those found in the first series. As the result of his work he concludes that the modifications produced by alcohol are not to be considered as a form of degeneration of the nerve-cells, since the alterations appear in a very few minutes after the injection of the alcohol. The moniliform (beaded) state and disappearance of the piriform appendages are seen only in the finest protoplasmic prolongations and far removed from the cell-body. As the dose of alcohol is increased this condition augments and approaches the body of the cell. This appearance is characteristic and not like that produced by chloroform, morphine or chloral hydrate. Certain prolongations remain absolutely normal even after large alcoholic dosage. The axis-cylinder submits to alterations only after very large dosage (100 c.c. of a 25-per-cent. solution). The cell-body does not seem to be in any way changed. This is at variance with the views of Demoor and Stefanowska. These alterations are able to explain all the phenomena of inebriety.

Gastric Analysis.—From experiments on over a hundred dogs, with and without artificial gastritis, M. FRÉMONT (*Bull. Gén. de Thérapeutique*, July 30, 1901) finds that the total chlorine per liter of the gastric juice is practically constant, no matter how much the free or combined acid may be, or whether the acidity changes from cold, the emotions, or disease. This being the case it is of no value to estimate the total chlorine, and it should suffice to find the total acidity, and the organic acidity, the free HCl being the difference between these two. Commenting on this Mathieu claims that the amount of chlorine does vary and that a high figure following a test meal without preceding lavage, indicates a tardy hyperchlorhydria or slow motor activity. He states also that in asthenic gastritis with absence of free hydrochloric acid, the normal chlorine content is very much increased, while hyperchlorhydria without increase of chlorine, and especially with decrease of chlorine, indicate a grave lesion.

Mammary Lymphangitis and Galactophoritis.—Lymphangitis is commonly ushered in by a chill, writes C. H. MAYGRIER (*L'Obstétrique*, July 15, 1901), a rise of temperature, pain and diffuse redness over an area of the breast and enlargement of the axillary lymph-nodes. Galactophoritis presents induration of a mammary lobule, with fever, pain, and the issue of pus from the nipple on pressure. In 2,432 cases lymphangitis occurred usually from the third to the ninth day, and seldom after the twelfth day of the puerperium, while galactophoritis appeared between the sixth and twelfth day, never before the third day, but in a fair number of cases after the twelfth day. When the two occur together the lymphangitis generally precedes. Lymphangitis ends abruptly in one to three days, without abscess formation, and there is rarely a relapse; galactophoritis may be without chill, terminates insidiously, often relapses, and may, though rarely, go on to suppurative mastitis, so that the prognosis is more serious. Lymphangitis does not affect the child, while if the child continues to nurse a galactophoritic breast, it ingests the germs of pus. Prophylactic treatment should consist of careful cleansing of the breast and the hands of the mother or nurse before touching it; then before nursing the nipples and the child's mouth should be cleansed with boric solution. Cracked nipples may be treated with compresses soaked in 20 per cent. alcohol, or a saturated al-

coholic solution of orthoform. When galactophoritis supervenes, the mother should be isolated, the child kept from nursing, and the milk expressed, but if there is both lymphangitis and galactophoritis, expression may favor abscess-formation. Still, expression is the best treatment at our command, and carefully and gently done will meet with good results.

Leucocytosis of Rabies.—Very little investigation has hitherto been made in regard to this subject. The question as to whether there occurs in this disease a quantitative or qualitative modification in the number of leucocytes and, if so, whether it can be utilized for diagnostic purposes, both before and after death, has recently been studied by J. Courmont and C. Lesieur (*Jour. de Physiol et Path. Générale*, July, 1901). Their researches were carried on clinically on the man, cat and dog and experimentally on the guinea-pig, rabbit and dog. Their blood smears were stained with Ehrlich's tri-acid solution, eosine-hematoxylin, and thionine. They find that at times the total number of leucocytes is considerably raised, especially in the terminal stages. Often it is preceded by a hypoleucocytosis, particularly in rabbits. Independent of the degree of total hyperleucocytosis there occurs in man a marked increase in the number of the polynuclearneutrophilics so that they constitute from 84 to 88 per cent of the total number of leucocytes. This increase is established at the time of appearance of the nervous symptoms and augments until death. No abnormal leucocytes or nucleated red blood-cells are present. Good preparations can be made from the pulmonary blood within six hours after death, but this contains a less number of the leucocytes than other blood. They conclude that the total leucocyte-count is not available for diagnostic purposes at any stage of the disease. From the onset of the nervous symptoms the differential count is of great value. An increase in number does not absolutely establish a diagnosis as this is found in other conditions, but a normal or reduced number at this stage absolutely negatives a diagnosis of rabies.

Bacteriology of Influenza.—Although there is described a bacillus of influenza its etiological relation to this disease is not definitely settled. M. E. Sacquepee (*Arch. de Méd. Experimentale*, July, 1901) has investigated an epidemic of influenza from a bacteriological standpoint. During the course of this epidemic four micro-organisms were found predominant at different times. At the beginning this organism was a long bacillus which occurred extra-cellularly and was unidentified. The pneumococcus then became the chief organism found. Later a streptococcus was most abundant and, finally, the influenza bacillus of Pfeiffer was predominant. During all this time the clinical symptoms and the infectiousness of the malady remained the same, yet none of these organisms seemed to be essential to it. From these observations he is inclined to doubt that influenza recognizes a specific primary infectious cause.

Tubercle and Influenza Bacillus.—As phthisis and influenza are so frequently associated A. J. Comstock (*South. California Practitioner*, June, 1901) advises the use of Ziehl's stain for the tubercle bacillus and Loeffler's alkaline methylene blue as a counterstain for the influenza bacillus.

Zomotherapy.—The use of raw meat or its juice in tuberculosis is commented upon by I. Honig (*Klin. therap. Woch.*, July 28, 1901) as follows: In meat juice we possess a preparation which, owing to its ease of manufacture, price and efficacy, is to be preferred to factory products, though a specific action in tuberculosis has not been absolutely proven. It forms, however, a valuable adjuvant to the usual hygienic and dietetic measures.

Cause of Gastric Ulcer.—Some interesting animal experiments have been made by W. V. Yzeren (*Zeitschrift f. klin. Med.*, Vols. 43, Nos. 3 and 4) which throw considerable light upon the pathogeny of gastric ulcer. He found that rabbits in which the vagus nerve is cut below the diaphragm generally remain alive and healthy after the operation, but develop ulcers in the stomach which resemble those in man in that they show no tendency to heal, are generally single and situated in the pyloric region at or near the lesser curvature, and are preceded by necrosis of the mucous membrane. Both the mucous membrane and the musculature in the neighborhood of the ulcer generally remain normal. The cause of the ulcers in rabbits is to be found in a spasm of the pylorus caused by severance of the nerve, and it is more than probable that a similar spasm is the cause in man. That this actually occurs is proven by the fact that the contracted pylorus can sometimes be palpated and that intermittent retention of stomach-contents can be detected by the gastric tube. The actual cause of the spasm in man is less clear, but it may be due to an inherited or acquired irritability of the gastric ganglia, so that errors in diet will readily cause a contraction. In discussing the surgical treatment, the following measures are mentioned: Pyloroplasty, with 7 per cent. mortality and 55 per cent. failures; gastro-enterostomy, with 19-32 per cent. mortality and 20 per cent. failures; and, lastly, pylorectomy, with a mortality of 45 per cent. The least success is thus obtained with the simplest and safest operation. The author has achieved good results and few fatalities in animals by the extramucous splitting of the pylorus, and recommends a trial of this operation in man. It consists in incising the muscle of the entire portio pylorica longitudinally down to the submucous coat without any suturing.

Present Aspect of Antitoxin Treatment of Diphtheria.—The use of antitoxin has reduced the mortality of diphtheria from 65-25 per cent. to 16 per cent., but has proved still more efficient when the injection has been made during the first day. J. D. Steele (*Therapeutic Gazette*, July

15, 1901) states that the greatest benefit the antitoxin has conferred upon the laryngeal cases is the reduction of the number that require operation. Symptoms of heart-weakness, albuminuria and paralysis, are probably considerably more common, however, but this is not to be attributed to the antitoxin, but to the fact that so many more patients survive. As an immunizing agent also, the antitoxin has established its value.

A New Symptom of Pericarditis.—Having himself recovered from an exudative pericarditis, P. PREGOWSKI (*Münch. med. Woch.*, July 30, 1901) describes a peculiar subjective sensation which he has not seen recorded. Whenever he turned over in bed on his right side he had a strange feeling as if at the same time some mass in his chest were rolling from the left side toward the sternum. He thinks that a careful inquiry for this symptom may aid in the diagnosis of pericarditis.

Action of Berberin.—Owing to the warm recommendation which berberin has received in the treatment of the enlarged spleen of chronic malaria and leucemia, M. MOSSE and K. TAUTZ (*Zeitschrift f. klin. Med.*, Vol. 43, Nos. 3 and 4) have investigated its physiological action with the following results: Berberin influences bacteria in that it inhibits their growth and diminishes the products of proteid-decomposition; molds and yeasts are affected in a similar manner and the assimilation and growth of the higher plants are reduced. Toward animals, especially rabbits, mice, chickens and frogs, berberin acts as a strong poison which causes much malaise and emaciation, reduces the reflex irritability and locally damages the nerves. It is also capable of setting up an acute hemorrhagic nephritis and a leucocytosis, but the spleen is not affected in any way, neither macro- nor microscopically. In certain cases in frogs the spinal symptoms of strychnine-poisoning are prevented by preliminary berberin injections. An increase of that property of the blood which leads to decomposition of peroxide of hydrogen was absent, despite the leucocytosis.

Yohimbin as Aphrodisiac.—Some further favorable results of the use of yohimbin as an aphrodisiac are reported by A. LOEWY (*Therapie der Gegenwart*, July, 1901). He found that after castrating dogs, erections set in just as rapidly as with normal animals, so that its action is not dependent upon reflexes set up from the hyperemic testes. It is thus clear that the action of the drug will also be satisfactory in those cases in which impotence has resulted from disease of the testes.

Roentgen Rays in Sarcoma.—A case of recurrent melanosarcoma of the leg, in which amputation was out of the question, was subjected to extirpation by C. BECK (*Münch. med. Woch.*, Aug. 6, 1901) and the raw surface exposed to the Roentgen rays for from ten to forty-five minutes, with the gratifying result that no further recurrence became evident at the site and that several metastases in the neighborhood underwent complete cicatrization. The author considers the action specific and not identical with that of the ordinary cautery. He recommends a trial of this method in cancer of the breast after amputation to destroy all the cells beyond the reach of the knife.

Ligation of Mesenteric Vessels.—Injury to the root of the mesentery is always serious and, unless prompt surgical interference is instituted, generally fatal owing to the large vessels torn through. Even if these are ligated, however, gangrene of the gut is apt to follow. Concerning the latter point, D. WILMS (*Münch. med. Woch.*, Aug. 6, 1901) states from personal observation that ligation of the trunk of the superior mesenteric artery above and behind the pancreas is a dangerous procedure while ligation of the corresponding vein is generally not serious. The latter was found necessary in a case of deep penetrating wound of the abdomen in which perfect recovery followed.

THERAPEUTIC HINTS.

Cold Irrigations in Typhoid.—Recognizing the great value of cold baths in typhoid fever, LEMOINE (*Le Nord Méd.*, Aug. 1, 1901) replaces them where baths are impossible by rectal irrigations with boiled water cooled to 64°-68° F. These he repeats every three hours, or even every two hours in some cases. They are not so effective as the baths, but act more rapidly in cooling the patient, and in addition clean out the intestine. The author uses two liters (2 quarts) for each washing, and stops the current from time to time to allow the intestine to empty itself, lest too much pressure should increase the distention. If the water is too cold it may provoke painful contractions, and even facilitate perforation. By these irrigations the nervous phenomena disappear, delirium is the exception and the tongue remains moist, but the effects are more transient than from Brand's method.

Hysterical Arhythmic Chorea.—The four types of arhythmic chorea are that of Sydenham, chronic progressive chorea attacking the adult and continuous until fatal, the symptomatic choreas including hemichorea, congenital chorea, hemiathetosis and double athetosis, and hysterical chorea. This last is of extremely variable character, simulating the other kinds, and occurring at all ages. Its treatment has been very unsuccessful, but HUYGHE (*Le Nord Méd.*, Aug. 1, 1901) has been able to cure six cases by immobilization. The patient is chloroformed slightly, and the choreic limbs vigorously massaged, so that the patient feels it, and at times even painfully. Thus the choreic has the belief that she is being operated upon. The limbs are then placed in splints and immobilized for five or six days, and generally all choreiform movements cease. If they still persist, the limbs are again immobilized. This is a species of auto-suggestion, which has met with some permanent successes.

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SATURDAY, AUGUST 31, 1901.

PARA-INFECTIOUS AFFECTIONS.

ONE of the most suggestive contributions to medical nomenclature in recent years is the use of the name of a disease as an adjective with the prefix *para* to denote that the symptoms or conditions described are only indirectly related to the disease in question. Fournier made the new term popular by his use of it with regard to the occurrence of sequelæ of syphilis, distant in time from the original attack of lues, yet unmistakably dependent on it for their etiology. The grouping of the parasyphilitic affections by a keen clinical observer has proved of great value in correcting our appreciation of the disease and its liability to produce hitherto unsuspected permanent effects upon the human system. The additional notion that these by-conditions of disease are probably due, not to the specific causative germ, but to toxins in the circulation was an accessory suggestion of far-reaching value.

We are familiar with similar by-conditions of certain other diseases that are of great interest. The now well-recognized special liability of children suffering from measles to contract diphtheria is probably an example of the toxin of the former disease preparing the soil in the human system for the luxuriant growth of the diphtheria bacillus. Diphtheritic paralysis is probably best classified as a paradiphtheritic action. Its occurrence is not separated, as in the case of parasyphylitic nervous ailments, by a long interval of time from the original attack of diphtheria, but it occurs at a time when the active diphtheritic symptoms are past and the best explanation of its etiology seems to be that it is due to the toxin of diphtheria still unneutralized in the circulation, or at least in certain susceptible parts of the system, after the cure of the original focus of the disease.

Recent investigations show that there are probably a series of paradiphtheritic affections that further observation will make easily recognizable as such. Walsh showed before the Philadelphia Pathological Society during the spring that the phagedenic ulcer of the cheek, known as noma, which occurs in the course of measles in run-down patients is almost surely a constant manifestation of the presence of the diphtheria bacillus and its toxins in the neighborhood of the lesion. This explanation of the etiology of noma had been suggested before, but the observed cases were few. The last investigator added eight new observations of noma in which the diphtheria bacillus was demonstrated. This sets all doubt at rest as to the nature of the lesion. Needless to say this confirmation of previous observations suggests a very hopeful therapeutic outlook for an affection that has been hitherto extremely obstinate to treatment.

This seems to be only an example of certain atypical and apparently unconnected complications that will prove to be associated with infectious diseases to which their relationship was unsuspected. Osler has pointed out that arthritis deformans very often follows severe infectious fevers and that there is apparently a special liability for it to occur after influenza. Stuart of Montreal showed that about one-third of the patients affected by this chronic deforming arthritis had a history of previous gonorrhea. It has been shown bacteriologically that the pus of osteomyelitic abscesses is often a pure culture of typhoid bacilli. Such cases of osteomyelitis occur as the result of injury to a bone some seven to ten years after recovery from typhoid fever. The typhoid bacilli seem to have been separated in the bone during the preceding attack of fever and to have acquired virulence for the individual once more after the period of immunity to the disease had passed. The trauma in such cases only furnishes

an opportunity for the walled-off bacilli to affect neighboring tissues by reduction of their resistive vitality.

In a word, there seems to be a number of affections, at present considered independent nosological entities, that are really manifestations of preceding infections. The recognition of the true identity of such symptom-complexes will prove an important step in advance in our knowledge of disease and will usually furnish valuable hints as to the therapeutics of these conditions. Possible connections of preceding infections with tissue changes that produce symptoms later are always to be borne in mind. It is probably that we have scarcely more than begun this interesting chapter of the para-infectious affections.

A GYNECOLOGICAL SCAPEGOAT.

FEW subjects have proved such a fertile field for the exercise of the pen and so profitable financially to the gynecologist and general practitioner as retrodeviations of the uterus. It has become almost axiomatic that in nothing can one so easily obtain the interest and coöperation of a patient as in anything connected with the sexual organs. The idea having taken root that a retrodeviation of the naturally movable uterus is a serious lesion, responsible for certain symptoms, nothing is more natural than that this condition discovered by examination should be made to bear the blame for many a pelvic pain.

The number of women who have been treated for the "misplaced womb" with no cessation of their pains and other symptoms, and are relieved by a course of catharsis, Christian Science, or other distraction from the genital sphere, shows the way in which the uterus has often been made the scapegoat, with complete disregard of constination, hysteria, and other common feminine disorders. That constipation can result mechanically from the pressure of so small a body as the retroflexed uterus seems almost incredible. The urinary symptoms referred to retrodeviation occur quite as frequently in its absence, as a result of inflammations of the urinary tract, urethral prolapse, cystocele, hysteria, etc.

Careful study of the subject cannot but lead to the conclusion that the symptoms attributed to retrodeviation of the uterus are due not to its altered anatomical position but to attendant complications. Neither can one fail to agree with Heinricius (*Archiv für Gynäkologie*, Band 63, Heft 3) that these complications are not caused by the retrodeviation. He holds that the pelvic circulatory stasis to which so much is attributed can result only from acute retroflexion which is rare. The endometritis and subsequent metritis which give rise to so many of the symptoms are often the result of infection, which is not favored by retrodeviation of the uterus. Further, such a displacement of the organ is often unaccompanied by endometritis. Pain in the back may be symptomatic of constipation, enteroptosis, disease of the vertebral column or cord, muscular strain, hysteria, neurasthenia, etc. How frequently are these conditions overlooked in favor of a protracted course of "local treatment!"

The frequency with which marked retrodeviation exists without giving symptoms, the relief of the symptoms which are often attributed to the uterine position by treatment of the complications alone, and the absence of any characteristic symptom or group of symptoms of uncomplicated retrodeviation of the uterus naturally lead to the conclusion that this has been made, often with purely honest motives, the excuse for a course of treatment which may have benefited the patient only after the manner of Christian Science. And after all it is hard not to agree with Mr. Dooley that "Christyan Scientists thinks there'se no such thing as disease, an' doctors think there ain't anything else. An' there-ye-are." Conservatism in at least the operative treatment of retrodeviation of the uterus is the logical conclusion.

SERUM INJECTIONS IN ANEMIC CONDITIONS.

ONE of the most interesting recent contributions to hematology is Hunter's theory of the septic etiology of pernicious anemia. As is now very generally known, he attributes the cause of this hitherto unexplained blood disturbance to an infectious focus somewhere in the system. Usually the infectious material is in the digestive tract and the absorption of toxic substances from it leads to the excessive hemolysis which is such a characteristic feature of pernicious anemia.

In Hunter's experience, the mouth, as a rule, has been the nidus in which infectious microorganisms have found a favorable location under eminently suitable circumstances of warmth, moisture and abundant food material. Carious teeth have seemed especially to be the foci of infection from which by deglutition constant reinoculation of the digestive tract has taken place.

Hunter's theory of the gastro-intestinal capillaries as the seat of abnormal hemolysis in es-

sential anemic conditions is not new. It is to be remembered that Sir Andrew Clark, always insisted on considering constipation as an important etiological factor in the production of the other obscure essential anemia—chlorosis. There is no doubt that the absorption of toxic substances from the contents of a sluggish intestine adds to the seriousness of chlorotic conditions. In these cases it has been considered, however, that the constipation is generally secondary to the blood changes. The lack of proper nutrition so diminishes muscle function that intestinal peristalsis suffers, as well as other muscular actions, in its proper performance. Whether bacterial toxins play an original rôle by causing abnormal hemolysis is at least doubtful. The primary condition in chlorosis seems to be a defective hemogenesis rather than any inordinate blood destruction.

According to Hunter's observations the streptococci have appeared to be the most prominent of the pyogenic micro-organisms in the production of serious blood disturbances. A very interesting and suggestive confirmation of this view of the streptococcic origin of pernicious anemia has come from recent observations in the therapeutics of the disease. In three cases, two of them under Hunter's own care and the third (the first recorded case, however) in other hands, the administration of injections of anti-streptococcus serum has been followed by rapid improvement. This amelioration of symptoms has continued until patients were restored to good health and, so far at least, the improvement has not been followed by the accustomed relapse. In one of the cases the interval of complete absence of symptoms has lasted for more than two years.

Of course these periods of recovery may prove to be only the well-known temporary ameliorations of the disease. Clinically, however, the improvement seems to be due to the use of anti-streptococcus serum. In two of the cases only the serum and certain intestinal antiseptics were administered. The effect of the serum may not be specific; that is, it may not act by directly neutralizing the toxins of streptococci present in the circulation, but only by tonic stimulation of the blood-making organs. More than ten years ago that acute clinician, Quincke, pointed out that even small injections of blood serum seem to bring about improvement in the blood condition of anemic patients, even those suffering from pernicious anemia. This same result has been noted by many observers in obstinate cases of chlorosis. The tendency to urticaria and erythematous eruptions, so common after injections of serum of any kind, shows how sensitive are the walls of the capillaries to action of certain well-differentiated principles that invariably exist in animal serum. Supposing this same effect to be produced on the capillaries of blood-making organs especially rich in their capillary network, the resultant stimulation can be easily understood.

There is no doubt that pernicious anemia is a much more common disease than it was thought to be only a few years ago. The serum method of treatment in hemic conditions is at least suggestive, and the recent reports of success with it should encourage its more extended employment until we are able to decide as to its actual usefulness.

FROM time to time the newspaper reporter outdoes himself in the effort to make copy. During the past week we have been amused by a number of items. We take pleasure in presenting a few to our readers.

The bacillus is the important item in the first brace; for instance, on the subject of old age, we have the following "made in France:" "Professor Gautier, a member of the Institut de France, has propounded a theory on the subject of perpetual youth. In isolating the bacteria of physical fatigue, he has found, he says, that it is a poison strongly resembling ptomain poison in nature. From this he argues that fatigue can, by the use of disinfectants, be avoided like any other poison, and consequently man need not weaken or age." This is a good enough tale for the *silly season*, which is the London title for this period of the year.

Another choice bit of tommy rot comes to us in a bacillary origin for epilepsy, as follows: "Prof. George H. French of the State Normal University of Carbonville, Ill., announces the discovery of a parasite which he says causes epilepsy. Cases were brought to the Professor's attention from all parts of the United States; he is rapidly developing his treatment, and when completed will give his discovery free to the world. He is known as the author of a work on zoölogy, and is a member of several foreign scientific societies." All hail to the new bacillus!

Mawkish sentimentality pervades a third in which it is reported that a certain Western physician is to give up everything, wife, children,

etc., etc., in order to devote himself to the cure of a case of leprosy.

Why it is that the laity go into hysterics at the mention of this very mildly contagious disease and the newspaper reporter uses up several inches in headlines is beyond the ken of sober-minded physicians who every day of their lives expose themselves to the contagion of diseases infinitely more dangerous than leprosy.

ECHOES AND NEWS.

NEW YORK.

Cremation of Garbage.—The cremation of the garbage of Queens Borough has proven to be a very satisfactory adventure. The crematories located in this borough are four in number and these are able to dispose of about 40,000 loads per year. Experience has shown that these can be operated at less expense than a reduction-plant and they are also much less offensive.

Mosquito Pest.—A systematic plan for the extermination of mosquitoes has been inaugurated by the residents on the north shore of Long Island from Rosyln to Huntington. The immediate work to be undertaken will be in charge of Mr. A. C. Weeks and Professor F. E. Lutz of the Chicago University, who will work in conjunction with Dr. C. B. Davenport of the Cold Spring Biological Institute.

The American Electro-Therapeutic Association.—This Association will hold its eleventh annual convention in Buffalo, on September 24th, 25th and 26th, 1901. Its headquarters will be at Hotel Niagara, and its place of meeting, at the Armory of the 74th Regiment.

PHILADEDPHIA.

Decrease in Hay-Fever.—The usual August outbreak of hay-fever has failed to manifest itself to any appreciable extent in the city thus far this year. The only apparent cause is the heavy rainfall during the month, rain having fallen on twenty of the first twenty-four days of the month. This is believed to have settled the dust and pollen sufficiently to keep in check the disease. If this cause acts until other conditions are more favorable a comparative immunity is looked for.

Appendicitis.—Philadelphia has lately been credited with being the banner city of appendicitis. Perhaps her blue bloods are addicted to the habit, but if the press reports are true the palm should go to Burlington, N. J., with its case of appendicitis in a goat which came to grief by the lodging of a rubber shoe heel in its appendix. Burlington holds the record.

Vital Statistics of Philadelphia.—Census returns show that Philadelphia with a death-rate of 21.2 per 1,000 for 1900 is exceeded by only four cities having a population over 100,000. The decrease from 1890 is also slightly under the average. A former port officer of the Bureau of Health states that the vital statistics of various cities are misleading and that the only intelligent method of making a comparison of the hygienic condition of our great cities is to take the reports of deaths from diseases alone and especially those diseases which are due to insanitary conditions or to ineffective efforts to prevent the spread of contagious diseases.

Smallpox Increasing.—Smallpox has slowly but steadily increased in the city during the summer months when it should be the most easily controlled. There are now eighteen cases in the city, almost entirely among white persons in contrast to the first of the year when colored people were affected. This year's record in Pennsylvania shows 946 cases and 7 deaths, while last year showed but 10 cases and no deaths.

Water Improvement Loan Completed.—The remainer of the loan for improving the water supply of the city, $9,000,000, was paid to the city by a syndicate August 22d. Work on the filtration plants has been temporarily crippled by the discovery of the omission of penalty clauses in the contracts.

Eye Disease from Public Baths.—Numerous cases of eye diseases are being treated at the hospitals as a result of bathing in the public bath-houses. The superintendent of baths points out that the fault is not in bad management but in the system itself. Although great care is taken to change the water in the pools, contamination by great numbers of bathers is inevitable. The remedy is the use of shower baths instead of pools. The public bath at 410 Gaskill Street is built upon this plan and is kept open the entire year. There is a nominal charge of five cents which is expected in time to pay all expenses. Each bather has a separate room, hot and cold water, clean towel and soap. The establishment is considered perfect from a sanitary standpoint.

CHICAGO.

Bacteria Found in Ice.—Bacteria, nitrates and ammonia in quantities forbidden by the laws have been found by City Chemist Bisbee in samples of ice of several companies dealing in the frozen product. Bacilli almost identical with those of typhoid fever were found in one sample, and other bacilli supposed to be characteristic of sewage were discovered in more than one block of ice. Ordinary city water, when exceedingly pure, has not more than one hundred bacilli to the cubic centimeter. Water called "usable" sometimes has as many as fifteen hundred per cubic centimeter, but the city water is never called usable if there are any sewage bacteria found in it. Freezing has a tendency to expel impurities from water, and therefore ice should contain fewer bacteria than the same amount of water. Twelve hun-

dred bacteria to the cubic centimeter are a great many.

Removal of Garbage.—The Nineteenth Ward Improvement Association was in earnest when it met a short time ago and denounced the present methods of leaving the streets uncleaned and the garbage boxes unemptied. The Health Department explains that the cause of the conditions complained of is an insufficiency of municipal funds. Whatever the cause may be, it is evident that difficulty exists. Any citizen may take the South Halsted car, alight near Twelfth Street, and see for himself the filthy streets and the overflowing garbage boxes that are the most salient features of the district. The city has never removed garbage as fast as it accumulated, and now bad has become worse. It is to be hoped that more attention will be given to this matter in the future.

The Tenement-House Question.—The Health Department has assigned territory to volunteer health inspectors, who are working in tenement districts. The specific cause of their appointment is that mothers need instruction in the care of their children. This instruction the volunteer inspectors will give, but they will concern themselves with the general conditions of tenement life and will be expected to make observations on such questions as drainage, ventilation, and crowding. While this work is noble and commendable, it is in its nature transitory and spasmodic. It is an outburst of individual philanthropy, creditable to those who participate in it, and gratifying to the city as a whole, but it makes still more apparent our lack of a permanent commission to which such duties naturally belong. The idea of a permanent tenement commission has been adopted in other cities with notable success. It is with the example of London and of Paris in their minds that the members of the committee of the City Homes Association makes the recommendation that Chicago "place upon a single responsible body the duties of regulating the existing tenements, of controlling the new buildings, and of rationally grouping the population of the city." This seems to be no chimerical scheme. It is in theory reasonable and in practice successful. That conditions in Chicago are so radically different from those of London and of Paris as to make impossible here what was perfectly feasible there seems unlikely. At the present time, both administration and reform are impeded by the way in which responsibility is divided between the Building Department, the State Factory Inspectors, the State Board of Health, the Bureau of Streets and Alleys, and other official bodies. The tenement house has become a question which cannot be treated incidentally. It needs special and detached attention. The New York Tenement Commission is now making plans for the organization of a municipal department which shall have powers even exceeding those of the Paris and London departments that have been mentioned. If Chicago means to concern itself seriously with the tenement house and, therefore, the health of its river ward population, it may have to adopt similar measures. At any rate, these measures deserve consideration.

Passavant Hospital.—Contracts have been let for an addition to the Passavant Memorial Hospital. This addition consists of a five-story stone and brick structure to cost $15,000.

GENERAL.

Northwestern University Medical School.—Dr. A. P. Ohlmacher has been appointed Professor of Pathology in the Northwestern University Medical School (Chicago Medical College). Dr. Ohlmacher has been connected with the Pathological Laboratory of the Ohio Hospital for Epileptics at Gallipolis, Ohio, and will for the time being continue the direction of that Laboratory.

Medical Congress in Egypt.—Invitations have been sent out for an international congress of medicine, to be held under the patronage of the Khedive of Egypt, at Cairo, in December, 1902. It will be the first great gathering of scientific men ever held in an Oriental country. The subjects to be considered more particularly, will be the diseases that come from the East, like cholera and the bubonic plague, as well as forms of liver complaint, dysentery and ophthalmia, prevalent in Eastern lands. Tuberculosis and the effects of climate will also be discussed. Among the medical men who are promoting the Congress are Abbate Pacha, Comanos Pacha, physician to the Khedive, Ibrahim Pacha Hassan, dean of the Cairo Medical School, Mol Eloui Bey, the ophthalmologist, and the chief Egyptian physicians, native and foreign. Dr. Voronoff is Secretary General of the committee in charge of arrangements.

Effect of X-Rays on Insects.—A recent test was made of the effect of X-rays on insects in the following manner: A box was made, half of wood and half of sheet lead. In the wooden half a number of larvæ of flies, bees, beetles, and other insects were placed, and the box was then put in the field of the X-rays. The insect colony at once became greatly excited, and after crawling to and fro, finally emigrated to the leaden half of the box, where the rays would not penetrate. The experiment was repeated many times and always with the same result. A similar experiment was tried with the blind larvæ of a certain species of beetle. A number of them were placed in an open cigar-box, which also contained a metal box with an opening. No sooner were the rays turned on than the insects showed signs of distress. Their uneasiness increased, and in a little while they all sought refuge in the metal box. As the larvæ in the second experiment were entirely sightless, their perception of the

rays must take place through the nerves of the skin.

Prize for Prof. van Gehuchten.—The annual prize of 5,000 francs for the best work in the province of medical research offered by the Belgian Government has been assigned this year to Prof. A. van Gehuchten for his works on the human brain and spinal cord.

Leprosy in Crete.—Dr. Ehlers, the Danish specialist, has been studying leprosy on the island of Crete, and estimates the number of cases at about 600. Prince George has lately directed that the lepers shall hereafter be isolated on the island Spinolonga, after the Hawaiian manner.

Seasickness Congress.—The following editorial note from the *Sun* is of interest: "There are certain maladies which, though not intrinsically funny, are for some occult reason treated almost universally as a very good joke, except by the sufferers. Seasickness, the most familiar of these, is at last to be rescued from contempt, for a congress is about to be held at Ostend, under the patronage of the King of the Belgians, for the purpose of inquiring into its nature and the best means of preventing and curing it. An elaborate exhibition has also been planned to consist of (1) specially constructed craft and apparatus designed to counteract the motion of ordinary vessels; (2) devices intended to check the temporary displacement of the viscera occasioned by such motion; (3) methods of supplying oxygen, ventilating, deodorizing and purifying the air below decks; (4) food, liquid and solid, for seasick patients; (5) drugs and other curative agents; (6) pamphlets and books dealing with the subject in all aspects. A series of experiments will be conducted by the congress on some of the boats that ply about Ostend and neighboring ports, and comparisons made between the several methods of treatment. Thus, one patient will be bound about the abdomen with flannel bandages, another will be provided with a pair of red spectacles, another will be dosed with cocaine, another will be placed in a cot on gimbals, and so forth through the several devices of disputed efficacy. No doubt many new methods of treatment will be proposed. The discovery of a cure is perhaps too much to expect, but we may reasonably hope that the congress, if it does nothing else, will at least do something toward giving seasickness its due. Other forms of shock are not treated as a joke, nor is this particular form either by those who are most familiar with it. The 'bad sailor,' the really bad one, takes it very seriously indeed, so seriously that it will probably be harder to find willing subjects for these experiments than for the experiments with the bacilli of bovine tuberculosis, malaria parasites and other such trifles. There is really no reason in the world, then, why this peculiarly unpleasant nervous disturbance should be laughed at. But public prejudice is so strong that it will never be treated seriously unless the members of the congress put it in a new light. Might they not be induced to attribute it to the mosquito?"

Oldest M.D. Graduate of Yale.—Dr. Chauncey Ayres celebrated last week his ninety-third birthday. Although he is feeble, the doctor is seen in the streets every fair day taking a walk. Dr. Ayres is the oldest living graduate of the Yale Medical School. He was in the class of 1831. Soon after his graduation he went to New York, and was one of the doctors in charge of the cholera hospital there during the epidemic.

New Lamp for Lupus.—A despatch from Copenhagen says that Dr. Sophus Bang, manager of the laboratory belonging to Prof. Finsen, inventor of the light cure for lupus, has constructed a special electric lamp, giving a feeble light, but which is extremely rich in chemical rays. The despatch adds that Dr. Bang used metal instead of carbon poles. The bacteria-killing power of this lamp is ten times as great as that of an ordinary arc lamp, and a lupus patient requiring seventy-five minutes' treatment with the arc lamp will require only from three to five minutes' treatment with the new one, which costs only $15.00.

Roentgen Ray Society.—The preliminary program of this Society offers the following papers:

Tuesday, September 10th, The Diagnostic Value of the Roentgen Rays with Special Reference to Their Application in Medico-Legal Cases, Mihran K. Kassabian, Philadelphia, Pa.; An Examining Frame and "One Minute" Localizer, with Demonstrations, S. H. Monell, New York; How the Induction Static Machine Can Be Excited Without a Separate Charter, John T. Pitkin, Buffalo, N. Y.; The X-Ray in Country Practice, Joseph C. Clark, Olean, N. Y.; What the X-Rays Show in Actinomycosis, G. E. Fosberg, Cedar Rapids, Ia.; X-Ray Work in Great Britain: Results of a Trip, G. P. Girdwood, Montreal, Canada; President's Address, Heber Robarts, St. Louis, Mo.; Researches in the Direction of Obtaining Shadowgraphs of the Muscles and Ligaments of the Body, H. Westbury, Harrison, N. J.; Brief Remarks on the Therapeutic Value of the X-Ray and Suggestion on a Universal Coöperation, Constantin V. S. Boettger, Ottawa, Canada; Some Medico-Legal X-Ray, Illustrated, F. Wesley Sells, Murray, Iowa: Investigation of X-Ray Problems, Virgilio Machado, Lisbon, Portugal; Skiagraphy of the Concretions in Urine, Especially Cystine, R. Jedicka, Chirurgical Clinic, Prague, Bohemia.

Wednesday, September 11th, Why Some Mistakes Are Made in Radiography, J. N. Scott, Kansas City, Mo.; Description of a Simple and Efficient Form of Electrolytic Interruptor, Elmer G. Starr, Buffalo, N. Y.; The Treatment of Cutaneous Cancer by the X-Rays, G. E. Peahler, Philadelphia, Pa.; Use of

the X-Ray as a Therapeutic Agent, Illustrated, H. P. Pratt, Chicago, Ill.; Some Light Rays in Tuberculosis, Dr. J. Mount Bleyer, New York; The X-Ray, an Absolute Necessity in Dental Surgery, Frank Austin Roy, New York; The X-Ray Tube, Emil H. Grubbe, Chicago, Ill.; Development in Crooke's Tubes in 1901, H. Westbury, Harrison, N. J.; X-Ray Machinery, W. C. Fuchs, Chicago, Ill.; The Relative Efficiency of X-Ray Generators, W. A. Price, Cleveland, O.; Position in Skiagraphy, M. E. Parberry, St. Louis, Mo.; Turck's Gyromele and the X-Ray in Diagnosis of the Diseases of the Stomach, Illustrated, J. Rudis-Jicinsky, Cedar Rapids, Ia.

Yellow-Fever Tests in Havana.—Newspaper comment is rife concerning the reports of experiments made in that city. Until Dr. Harvard, a careful and able observer, gives official sanction to these rumors it is unwise to offer any opinions concerning the value of Dr. Caldas' observations, especially since Dr. Harvard has already been reported as saying that the experiments are being carried out in a very loose and unscientific manner.

Obituary.—Dr. Alfred A. Dana of New York, while attempting to cross the Harlem Railroad tracks at Bronxville August 22d, was struck by a local express train and killed.

OBITUARY.

THOMAS MASTERS MARKOE, M.D.

New York has lost another of its illustrious surgeons. Ripe in years and well beloved, Dr. T. M. Markoe died last Tuesday, August 27th, at his summer home in East Hampton, L. I., at the age of eight-two years.

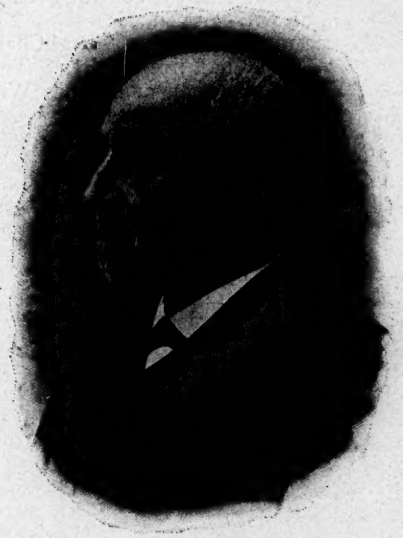
Dr. Markoe retired from active practice several years ago, by reason of advancing years. He was born in Philadelphia in September, 1819, and was graduated from Princeton in 1836, and from the College of Physicians and Surgeons in 1841. In 1839, while still a medical student, he became a junior assistant in the New York Hospital. He had been connected with that hospital ever since, except during a brief period immediately following his graduation.

He became assistant curator in the Pathological Museum in 1842, and lecturer on pathological anatomy. From 1852 to 1892 he was attending surgeon at the New York Hospital, and thereafter consulting surgeon. From 1860 he was a professor in the College of Physicians and Surgeons, up to 1871 being adjunct professor of the principles and practice of surgery; from 1871 to 1879 full professor, and from 1878 to 1888 professor of the principles of surgery.

His success as a practitioner began at an early period of his professional career. He was associated with Dr. Edward Delafield from 1849 to 1865, when Dr. Delafield retired. A partnership with Dr. Francis Delafield, son of his former partner, followed, and later Dr. Markoe's own sons became associated with him.

Before he became a professor at the College of Physicians and Surgeons, Dr. Markoe was for a time professor of anatomy at Castleton Medical College, in Vermont, and afterward professor of pathological anatomy in the University of the City of New York. At various periods he served as attending surgeon to the Nursery and Child's Hospital, the Mount Sinai, Bellevue, and Roosevelt Hospitals, and also as consulting surgeon at Mount Sinai, Woman's, Roosevelt, Orthopœdic, St. Mary's, Vassar, and the Nursery and Child's Hospitals, and to the Northern Dispensary. He was also a member of the staff of consulting physicians and surgeons of the New Dispensary.

Through the war he served as a surgeon in the Union Army, being at first stationed at Fortress Monroe and later at Fredericksburg. After the war he returned to his teaching, retaining from 1860 to 1870 the position of adjunct professor of surgery in the College of Physicians and Surgeons. For the next nine years he served as full professor, and during the rest of his active service he was professor of the principles of surgery at the College of Physicians and Surgeons. In these various capacities he became well known to very many New York physicians of the present day, and a considerable proportion of them had been at one time or another under his personal instruction. His genial personality was much appreciated by the students and his easy flow of language gave an interest to his lectures, which, taken with their practical bearing, always resulted in a lecture-room crowded with enthusiastic listeners. Dr. Markoe's telling descriptions of the processes of repair and his "healthy laudable pus" will always remain as pleasant pictures in the



THOMAS MASTERS MARKOE, M.D.

minds of his many students. Since his retirement in 1890, he has borne the title of emeritus professor of surgery at Columbia.

Dr. Markoe's published works have not been many, but they have been marked by high attributes. His work on Diseases of the Bone was an authority for many years.

Apart from his busy professional life much of his time was given to other interests. He became a trustee of the Astor Library in 1863, remaining as one of its directors until its absorption into the consolidated library plan. From 1891 to 1895 he was president of the Astor Library.

He was a member of the Academy of Medicine, County Medical Society, the Pathological Society, Medical and Surgical Society, Society for the Relief of Widows and Orphans of Medical Men, the Medical Journal Association, and of the Century, University, and Princeton Clubs; the American Museum of Natural History, and the Metropolitan Museum of Art.

Dr. Markoe married in 1850 Miss Charlotte Atwell How. They had five children. Two of the sons, Francis Hartman and James Wright, are physicians.

CORRESPONDENCE.

INSURANCE EXAMINERS' FEES.

To the Editor of the MEDICAL NEWS:

DEAR SIR: As far as I can judge the business manager of at least one of the most prominent life insurance companies of New York looks upon the medical department as little better than an unnecessary expense.

As local examiner I was advised that the fee for examination of risks up to $5,000 would be $3.00; it used to be $5.00. When I read the notice it recalled to my mind a factory where a cheap watchman was kept—the factory was burned down twice at night time. The insurance company that is parsimonious with its examiners should get bad risks in proportion to their parsimoniousness.

I accepted the appointment knowing all too well that the disunited medical men could not fight the Company and that if I did not take the appointment my neighbor would.

The next communication concerned the appointment of the local agent; if I suggested a good agent I was to receive a bonus of $10.00 for each $10,000 of insurance written. Now, this is surely asking me to act as agent and as examiner; if so much insurance is written then a commission is paid to me. I feel that this compromises my freedom as an examiner, to the possible detriment of the Company, but you say in a recent issue some companies are trying to insure everything that has one foot outside the grave.

Whilst attending strictly to my professional duties I unwittingly came within earshot of a meeting of the agents of this insurance company, in conference with officers from the head office. The agents were instructed to tell the doctors that the number of examiners was to be reduced, that the examinations were to be so much more numerous that the doctor would actually get more money under the $3.00 fee than under the $5.00. This is the new argument; we are to do our examinations by wholesale and therefore we must accept a smaller fee. Then the old argument was trotted out, that insurance fees were sure, no bad debts or, to put it plainly, the agents must blow the horn of their company to the tune that the company pays its lawful debts. This is a thing an honest man would not blow about very much. Further, in answer to questions, the head-office man instructed the agents that they must not pay the $2.00 out of their own pockets to the doctors as some had done; they must "support the head office" and the "head office would support them." Then, as a final *coup*, the instructor said in answer to a question that there might be special doctors whose influence must be considered and that in these cases arrangements might be made with the head office so that these especially influential doctors should receive fees at the old rates. Comments are unnecessary.

A. JACK.

July 23, 1901.

COLLECTIVE INVESTIGATION OF THE INFLUENCE OF THE SILVER-NITRATE INJECTIONS ON PHTHISIS.

To the Editor of the MEDICAL NEWS:

DEAR SIR: In 1892 the undersigned began a collective investigation of the action of cold in the treatment of acute pneumonia, and there is reason for believing that this procedure, which resulted in gathering four hundred cases of this disease thus treated with a death-rate of not quite five per cent., was an important factor in calling attention to the utility of that treatment and in introducing it to the profession of this country. That research was based on the conviction that no remedy can be called truly successful until it has passed the exacting crucible of clinical experience, and it is now proposed to apply the same ordeal to the silver-injection treatment of phthisis, which, in a large hospital, dispensary and private practice, reaching over a period of three years, and during which many thousand injections were administered, has given me greater satisfaction than any other method that I have ever employed. In keeping with the above expressed feeling a cordial invitation is herewith extended to those members of the profession who have the inclination and opportunity to investigate this method of treating phthisis and to whom a reprint on the subject, with full information and blanks to report cases, will be cheerfully sent on application.

THOMAS J. MAYS, M.D.

1829 Spruce Street, Philadelphia, Pa., August 15, 1901.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, August 17, 1901.

THE "SILLY SEASON"—THE COMING REVOLUTION IN THE BRITISH MEDICAL ASSOCIATION—DISORDERLY SCENES AT CHELTENHAM—THE REFORM OF THE ARMY MEDICAL SERVICE.

WE HAVE now fairly entered on what journalists call the "silly season," when the gigantic gooseberry excites unholy jealousies in the agricultural mind and the great sea serpent disports himself in the newspapers. Parliament is on the eve of prorogation and physicians follow their patients out of town—to the seaside, to Switzerland and other Continental playgrounds, where they sit beside them at *table d'hôte*, realizing the millennial picture of the wolf lying down with the lamb. Hence the medical papers are duller even than usual—which is saying much. The only question that excites a languid interest in the few who concern themselves about medical politics is the projected reform of the British Medical Association. It is clear that, although the reformers carried all before them at Cheltenham, the scheme is looked upon with growing doubt and misgiving by many who cannot be regarded as obstinately conservative. They are coming to see that it is revolution rather than reform that is proposed, and that not merely the integrity, but the very existence of the Association will be imperiled if an imperfectly thought-out scheme is adopted. They declare that the matter was not properly discussed at Cheltenham, but rushed through by the simple process of muzzling the opposition. I was talking about the meeting a day or two ago to one of our foremost men, whose name is as well known on your side of the Atlantic as on this, and he gave me his impressions with a racy frankness which literary decency forbids me to reproduce. But the gist of his deliverance was that the reforming party were, with the exception of Mr. Horsley and one or two more, professionally as well as personally insignificant and that they only took to agitation because they had no practice to speak of. In fact they are, he said, the analogues of the unemployed *avocats* who have always been so dangerous a factor in French politics, and of the intellectual proletariate whose mischievous unrest in Germany was so much dreaded by Bismarck. Seeing no other chance of notoriety they bombard the editors of the medical journals with letters which when not silly are spiteful, and which if read by the outside public, must give it a very unfavorable opinion of the temper, logic, and even grammar of the medical profession. These effusions come from a small but noisy group whose obscure names have become a terror to quiet folk who seek for scientific edification in the medical journals. The amount of space occupied by the venomous vaporings, the droning and driveling, the braying and blustering of these fussy nobodies, goes far to justify the description of our two big weeklies as the "Great Unread." And it is the spirit of these men that is the active ingredient in the elixir of reform which is to be given to the British Medical Association to strengthen its Constitution! My friend added that of all the men of any importance whom he had met at Cheltenham, not one was in favor of the scheme which they thought, as he did, would probably ruin the Association. When I asked why, having the power to prevent its passing, he and his fellows did not take the trouble to vote, he merely shrugged his shoulders, and said, "How could any self-respecting person have anything to do with such a rabble?" There is the whole situation in a sentence. The great bulk of the members of the Association, including almost all the men whom it could least afford to lose, see clearly that it is threatened with wreck by being given over to the guidance of a few self-seekers and nonentities, but they will not lift a finger to save it!

What manner of men they are into whose hands the management of the British Medical Association is in imminent danger of falling was only too plainly shown at the annual dinner. This is generally a dreary but decorous festivity, but this year it was little better than an orgie. The conduct of many of those present was more like that of rowdy students than of professional men, and the interruptions were so loud and incessant that the speakers could not be heard. Fortunately the President is hard of hearing, and owing to this infirmity he was able to give the rein to his ultra-Ciceronian *copia fandi*, in blissful ignorance of the fact that no one was paying attention to his eloquent and loyal but immensely long orations. Professor George Dock of Michigan, who responded to the toast of "Our Guests," made caustic reference to the interruptions by telling a story of a speaker, who, in a like difficulty, said to one of the noisiest among the audience, "Do you believe in the efficacy of prayer?" To which the reply was, "Yes, I do." The next question was, "Do you believe in regeneration?" Whereto the answer was also in the affirmative. "Then," said the speaker, "the next time you pray, pray that you may be born again and stillborn!" The whole thing was a disgrace to the medical profession, and what made the scandal still greater was the fact that several Members of Parliament, and local magnates, clerical and lay, were present. What they thought of such an exhibition of disorderliness one hardly likes to conjecture.

The scheme of the Secretary of State for the reform of the Army Medical Service which a few weeks ago was submitted to a committee of experts is now ready. It will probably not be made public, however, for some time—possibly not till Parliament meets again in January. At any rate it cannot receive the Royal Sanction till Parliament has had an opportunity of discussing it, and there will be no opportunity till next session. I have heard on excellent authority that the new scheme is of a nature that will make it acceptable to the service and to the profession at large. The pay is to be on a scale that may fairly be called

liberal; the military titles which were wrung out of the War Office with such difficulty will be retained; opportunities will be given to officers of bringing their scientific knowledge up to date and increasing their practical skill; men of special talent will have better chances of doing good work than they get under their present *régime;* and the Director-General of the Service will have a seat on the Army Board when matters connected with the health of the troops are being considered. He will thus no longer be, as he is now, a mere departmental official, but the head of an autonomous branch of the army. His pay will be on a scale corresponding to his rank and official importance.

All this sounds very well, but we must not be too sanguine. The War Office has in past years shown a perfect mastery of the art of keeping the word of promise to the ear and breaking it to the heart. The success of the scheme will depend on the spirit in which it is carried out by the military authorities. But there is ground for hope that a better day is about to dawn for the medical service of the army in the mere fact that Mr. Brodrick, who has hitherto shown himself very decidedly unsympathetic towards the medical officers, seems, contrary to expectation, to have made a serious attempt to meet the demands of the profession. The hour has come and perhaps the man. They have not come too soon, for at the present moment there is not a single candidate for a commission in the Medical Service of the British Army, and I have reason to know that a large number of officers intend to retire as soon as they have served the twenty years needed to qualify for a pension.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

OPHTHALMIA NEONATORUM—ALOPECIA—ANEMIA IN PREGNANCY.

M. PINNARD, at the Académie de Médecine, July 16, 1901, read a paper in reply to a communication from the Minister of the Interior, which requested some action by the Academy as a body relative to adopting a code of instruction for midwives and nurses as to the prophylaxis and care of the various forms of ophthalmia and conjunctivitis to which the newly-born are subject. The paper closed with the following conclusions which were adopted: "For the decrease of the number of the blind the Academy of Medicine commends the following rules to the Government: First, let there be given at each house at the time of childbirth a circular, which shall give warning of the dangers and outcome and of the symptoms and causes of the ophthalmias to which the newly-born child is a victim. Second, measures must be taken to secure prompt announcement of all purulent ophthalmias without any exception whatever. Third, appointment at every public institution, whether purely a clinic or a maternity hospital, of an ophthalmologist, who shall care for those afflicted with the disease and instruct all undergraduate doctors, nurses and attendants in their treatment."

M. HALLOPEAU read a paper on the contagiousness of alopecia in behalf of M. DEZANTIÈRE in which the arguments against this theory were enumerated and then refuted by the well-known clinical features of this disease. There are many well-established small epidemics of alopecia in households, small villages, barracks, etc. Recently in Creusot there appeared a rather remarkable repetition of this feature in a school. Two children had gone to Paris and returned infected. After a time they passed the disease to many of the other scholars, then the teacher caught it and finally children in other schools. It is also easily demonstrable that the disease is parasitic in nature and progresses by auto-inoculation clinically. Although the parasitic character of this affection is admitted by the best authorities the infecting germ is not yet isolated. It is further established that it can not inoculate at a distance, but does so purely by personal contact. It is therefore unnecessary to exclude from schools, stores, etc., all those who have become afflicted, but it is desirable to have them wear some form of headdress which shall protect their associates from contact with them. A further change in their hygienic surroundings is hardly essential.

M. CHARRIN and M. GUILLEMONAT at the Académie des Sciences, July 8 and 15, 1901, read papers on the anemias of gestation, in which the following points were made: In general the blood changes due to pregnancy are too little studied and understood. In the first place, they made researches into the amount of iron. In pregnancy the iron salts of the spleen fall to 0.72 from a normal total of 0.96 and this results probably in favor of the child, because after birth it obtains comparatively little iron in the milk. The total iron salts in the maternal blood also undergoes much decrease; for example, in a normal woman, not pregnant, the total will be about 0.45, in the same woman with child it falls to about 0.38 to 0.34, in an anemic gravid woman the decreased total may range from 0.32 to 0.17. Further the alkalinity of the blood passes the normal of 1.20 to 2.00 by declining to 1.05 to 0.70 in the healthy and to 0.93 or even 0.53 in the anemic pregnant women or in those convalescent from phlegmatia. The mass of lime salts in commonly augmented. That of magnesia, on the contrary, becomes ordinarily much less. Coagulation in glass is as a rule a little more rapid than normally, the ratio being about 7 min. to 8 or 9 min. Urinary acidity rises from 1.20 or 1.45 to 1.57 or 1.95 and the total alkalinity of the saliva declines. In short, although the cellular elements show no important and constant changes the soluble parts of the blood indicate the common lien upon the system, and the waste of gestation. On the one hand, the loss in iron shows a certain degree of depreciation or disassimilation, and, on the other hand, it is found that after various changes there is during pregnancy a lessening of

the alterations in the blood which tend to the benefit of the child without much loss to the mother.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 16, 1901.

The President, Robert F. Weir, M.D., in the Chair.

The proceedings of the evening were opened by a memorial address on the late Dr. S. A. Purple, formerly President of the Academy of Medicine, delivered by Dr. Stephen Smith, his longtime friend and associate.

A Self-Made Man.—Dr. Purple, who afterward became one of the most prominent members of the New York Academy of Medicine, was born in 1822 of poor parents. He had to earn his own living besides helping pay off some debt contracted while the children of the family were growing up. At the age of twenty he entered Geneva Medical College and graduated after two years. For several years before his entrance into the medical school he had been reading medicine, keeping the book open in front of him while working at his trade. In order to pay the expenses of his medical education he worked on a farm for five months of each year and thus secured enough to support himself under the practice of the most rigid economy during the school term. He was graduated at the University of the City of New York and, by the advice of a clerical friend from his native town who had a charge in New York City, resolved to take up practice in the city.

Early Struggles.—When Dr. Purple started for New York to begin his practice he had only $25 in his pocket. In order to save expense he worked part of his way to the city on a canal boat, but even by so doing, when he reached town, he had only $17.50 as his capital. Of the struggle of his early years, he said very little. To friends he confessed that for the first three years he did not make his living expenses. He was able, however, in his fifth year to pay off most of the debts thus incurred. He became first an assistant editor of the *New York Journal of Medicine* and afterwards assumed editorial charge of the *Journal*. During his years of editorship, he contributed a number of articles himself and the high character of the contributions to the *Journal* show how wide was his acquaintance with medical men at the time, and how good his taste in selecting material.

Bibliophilic Work.—While in editorial charge of the *Journal* he became taken with the idea of making a collection of the serial medical literature of America. Incidentally he became interested in books on American history and his collection on this subject is extremely valuable and well known. He had a complete set of all the American medical periodicals that have ever been issued and made a present of them to the New York Academy of Medicine. This contribution laid the important foundation-stone of the present library of the Academy. His interest in the academy included every department of its work, however, and it is through his influence with Dr. Hosack that the Hosack contribution of $75,000 to the building fund of the Academy of Medicine was made. Dr. Hosack himself was deeply at enmity with a number of medical officials prominent in the Academy councils. When Dr. Purple first sugested the contribution Dr. Hosack would not listen to it. The unselfish spirit of the suggestion and Dr. Purple's friendliness for several years afterward won over Dr. Hosack to his purpose. After Dr Hosack's death, Mrs. Hosack offered to send her check for the amount, saying that it had been her husband's expressed wish that the sum should be given. While there was already a considerable sum in the building fund before the Hosack contribution, it was this magnificent donation that made the immediate erection of the Academy possible.

Portrait in Oils and Tablet.—A portrait of Dr. Purple, life size, in oil, was then unveiled. Dr. Smith presented it in the name of Dr. Purple's brother's family to the Academy as a souvenir of its dead President. The memorial tablet to Dr. Purple was erected at the entrance to the library. It contains the following inscription: "Samuel Smith Purple, M.D., Born June 24, 1822; Died September 29, 1900; Founder of the Library of the New York Academy of Medicine to Which He Gave Large and Valuable Contributions; A President of the Academy and an Earnest and Successful Worker in Its Interests; This Tablet Is Erected to Commemorate His Many Virtues and Rare Usefulness."

Sitophobia of Enteric Origin.—Dr. Max Einhorn read a paper on this subject. He said that while sitophobia of gastric origin is not uncommon, the fear of food because of intestinal distress after eating, though rare, is not infrequently seen. The word sitophobia has been taken already as the name of the condition in which patients refuse food when suffering from melancholia. This is really, however, not fear of food, but food refusal with suicidal purposes. It can be readily understood how sitophobia may endanger life when carried to excess.

Symptomatology.—A recent case in Dr. Einhorn's practice illustrates very well the symptomatology and general nosology of the disease. The patient suffered considerably from headache and obstinate constipation. He was a man of about forty years of age and the constipated habit had lasted for many years. When first seen about three years ago, cal-

cined magnesia was prescribed and large olive-oil injections advised. He became better under this treatment, but then neglected the diet regulations given him, failed to take the treatment regularly and became worse. He went to another physician, who advised large enemata of water. After a while these failed to help him and then he began to use various purgatives, his constipation constantly growing worse. It became so bad that he had a passage only every seven to ten days. This annoyed him very much and fearful lest the accumulation of material should do harm, he ate less and less. As a result extreme emaciation set in. He lost about forty-five pounds and when stripped every bone in his body could be counted. Sugar and albuminous materials especially seemed to cause him discomfort and serious inanition had resulted from the discontinuance of their use.

Special Therapeutics.—He was advised to use an injection of a pint of olive oil every day and sufficient calcined magnesia to secure a movement of the bowels. The amount of food that he should take was prescribed and his diet was gradually increased. Plain food was insisted on, but he was not allowed to refuse food because of his discomfort. Under this régime he increased nearly a pound a day for over a month and has now gained 32 pounds in all. His general condition is much improved, and his sitophobia has decreased with his increase in weight and the disappearance of his emaciation.

Diarrheic Sitophobia.—Not all the patients who refuse food because of the fear that it will do them harm, suffer from constipation. In a recent case the patient was suffering from diarrhea. The taking of food seemed to give rise to liquid stools in which undigested food material was passed. Gradually the patient limited the amount of food taken so much that he lost weight and his weak anemic condition still further increased the tendency to diarrhea. As a result of sitophobia the first prominent symptom is always anemia. As a result of this, insomnia is apt to develop; there may be even slight febrile movements and there will be usually a small amount of albumin in the urine. The pallor and dizziness with albumin may seem to indicate the existence of nephritis. The best proof that there is no nephritis in the case will come when as a result of increase in the amount of food consumed, the albumin disappears.

Treatment.—The most important indications for the treatment of sitophobia are the persuasion of the patient to take more food. This will sometimes require considerable argument and representation of the necessity of more food than is being taken. When, as is usually the case, there is considerable loss of nervous tone, strychnine is indicated. Where anemia is an important feature of the case, iron will be needed. In cases where constipation exists, the tendency of iron to increase the constipation must not be forgotten and the bowels must be carefully regulated. Drugs alone without regulation of the patient's diet will not bring about improvement.

Syphilis of the Liver.—Dr. Einhorn said that syphilis of the liver is well known and has been well described. It has not been treated from a clinical standpoint, however, quite as much as its importance justifies. The description of it has been left too much to the pathologists and its treatment and symptomatology have been considered rather by the syphilographer. Long ago Ricord described gumma of the liver and pointed out the conditions that develop in this important organ as a consequence of syphilitic affection. To Virchow, however, we owe the scientific pathology of syphilis of the liver and after his descriptions the clinicians established the nosology of the diease. Syphilitic enlargements of the liver occur from three and one-half months to twenty-five years after infection. The enlargement is usually irregular and nodular in character, but this symptom is not invariable. At times considerable tenderness in the hepatic region is a prominent symptom. Spontaneous pain is usually not noted. As a result of interference with the portal circulation, ascites is apt to become a prominent feature of the disease. As a consequence of the enlargement of the liver, anasarca may be a symptom. Syphilis is much rarer in America than in other countries and syphilitic enlargement of the liver is consequently rather rare. A number of cases of the disease have, however, been reported in America and have been carefully studied.

Classification.—Syphilitic disease of the liver may be classified under three groups, namely, gumma, syphilitic cirrhosis, and either of these with icterus and the changes induced by the icteric condition. The history of a characteristic case was given. The patient was a man, thirty-four years of age, who had his chancre six years before. He remained well and strong notwithstanding the syphilis, but began to complain of some digestive symptoms several years ago. The first noteworthy symptom was belching of gas; then he had severe pains after eating and became nervous and restless and sleepless at night. He lost 24 pounds. Physical examination showed the presence of distinct resistance in the gastric region. A tumor-like area about the diameter of a silver dollar could be felt in the pyloric region. The gastric chyme was examined because there was a suspicion of the presence of cancer. Nothing to confirm this suspicion was found. Hydrochloric acid was slightly lessened in amount, but there was no lactic acid present.

Treatment.—As there was syphilis in the history, the patient was given mercury rather freely and soon began to improve. After about

three months practically all of his symptoms had disappeared. The patient was warned that a relapse of his condition might easily occur and was told not to neglect the preliminary symptoms of the recrudescence of the liver affection. Notwithstanding this warning, the liver was allowed to become seriously affected. After about two years he came back because of almost unbearable tension in the abdomen. On the right side an immense tumor of the liver could be outlined, on which a number of coarse nodules, the size of a walnut, could be felt. One of the large knobs was the size of an apple. The lower level of the liver dulness extended from the umbilicus around into the flank. The upper border of the liver dulness was about normal. The spleen was not much enlarged. Inunctions of mercury were tried and iodide of potassium was freely used. Under this treatment the diminution in the size of the liver was constant and marked. This diminution could be followed from week to week. In between six and seven weeks the liver had returned to its normal size.

Symptomatology.—Usually the initial symptoms are pains in the right hypochondrium and at times in the epigastrium. These pains are sometimes so severe and localized that because of their position they are taken for gallstone colic. The painful symptoms have usually been preceded by digestive symptoms for some time. Loss of appetite is often a marked early feature of the disease. Constipation occurs quite commonly and diarrhea is a rarer symptom of the disease. Loss of weight nearly always occurs, but it is not so marked as during the growth of neoplasms. The other signs characteristic of cancer, cachexia, weakness, bad color, with anemia, are not so prominent in syphilis. Icterus occurs quite commonly. It may be one of the first symptoms of the disease and then may disappear completely, or may persist until the syphilitic condition is entirely cured, or the patient succumbs. When it occurs at the beginning of the affection and disappears later, the jaundice is due to a catarrhal icterus. When the jaundice is persistent, it is due to mechanical interference. In all cases enlargement of the liver occurs. When there are gummata, these occur as nodules. In syphilitic cirrhosis of the liver there is hypertrophy of the whole organ with overgrowth of connective tissue between the lobules of the liver and the organ becomes more or less regularly enlarged and quite hard. Enlargements of the left lobe of the liver are said to be more suspicious of syphilis than enlargements in the rest of the organ, but this symptom is not of much differential value.

Differential Diagnosis.—Where a tumor of the liver can be demonstrated, even if there is no history of syphilis, antisyphilitic treatment should be tried. The therapeutic test is one of the best pathognomonic differentials that we have. Where simple enlarged liver exists, it is extremely difficult to differentiate it from syphilitic hepatitis. Syphilitic enlargement of the liver also resembles very closely hypertrophic cirrhosis. This latter disease is apt to improve, at least at first, under the administration of iodide of potash, so that the iodide test alone does not determine the presence of syphilis. The hardness of the liver does not enable one to distinguish cancer from syphilis, though usually malignant disease is harder to the touch than are the syphilitic tumors. Some syphilitic liver conditions give, however, very unyielding induration. Examination of the blood may prove of some assistance. There is an increase of eosinophiles in the blood during syphilitic invasions of viscera, according to Neisser.

Alcoholic Cirrhosis.—With regard to alcoholic cirrhosis, drunkard's liver, the history must be the main diagnostic aid. In alcoholic cirrhosis the spleen usually enlarges later than it does in syphilitic cirrhosis. With regard to syphilitic hepatitis it must be remembered that sometimes iodide of potash does no good, because the connective tissue in the liver has become fully formed and no longer yields to the absorbent effect of the iodide.

Prognosis of Syphilitic Liver.—The prognosis of the disease is good if the diagnosis is made reasonably early. The presence of ascites soon makes the prognosis unfavorable. The larger the amount of fluid in the abdomen and the longer it is allowed to remain there, the more harm is done. The increase in intra-abdominal pressure very soon interferes with the functions of the organs and produces lasting pathological changes in them. Dr. Einhorn has had one death out of his ten cases and even this improved under treatment. All the others are living and in reasonably good health.

Treatment.—The drug treatment consists of the use of a mixture of potassium iodide and sodium iodide, two to four drams a day at the beginning and gradually increased to five to six drams a day. A combination of these two salts is better than either one of them and it gives much better satisfaction than does the potassium iodide alone. The antiluetic treatment should be continued for from three to four months. Where anemia exists arsenic should be used and also iron. A combination of arsenic and ferric iodide is a very efficient remedy. For ascites, puncture should be made as soon as the pressure gives serious inconvenience. Delay in evacuating the serious fluid in the abdomen is always productive of at least functional visceral mischief. Milk and eggs should be the main part of the diet and bland foods should be chosen with a great deal of care.

Mucous Colitis.—Dr. Henry Koplik read a paper on the intestinal intoxication occurring in mucous colitis in young children. He said that in many cases the prominent symptom of

mucous colitis is an auto-intoxication. There is evidently incomplete digestion followed by the absorption of poisonous peptones. As a rule these poisonous peptones are neutralized in the intestinal walls or in the liver. When this neutralization fails to take place, the work of elimination is thrown upon the kidneys and the indication of this is the presence of acetonuria and diaceturia. As the result of the irritation of these substances, the kidneys fail to act properly and certain uremic symptoms come to complicate the disease.

Symptomatology.—One of the prominent symptoms of the disease is vertigo. Occasionally there is a certain amount of delirium. Stupor is not uncommon and headache is frequently complained of. The resistive vitality of the heart and lungs is lowered, these organs are apt to suffer in their function and the general nutrition is disturbed. A special form of the mucous colitis occurs in children at the age of from three to six years. As a rule, they have been constipated from infancy, or at least have had long constipated intervals. During these intervals some food is apt to disagree with them, particularly, for instance, unboiled milk or vegetables and then they begin to show signs of nutritional disturbance. They become anemic, slow to understand things, peevish and irritable. When the interval passes, they become bright and good and healthy once more. It is evident that the changes of disposition are associated with intestinal toxemia. Such cases may easily develop sudden symptoms, more or less alarming in character.

Mucous Evacuations.—Such children usually have a certain amount of mucous colitis the main symptom of which is the presence of mucus in their stools. Eustace Smith said that we do not as yet understand why these mucous stools occur, nor the true source of the mucus. Our knowledge has not become more definite since he wrote. A typical case makes the condition more easy to understand. The patient was a child of six years of age, bottle fed, and had suffered from a slight amount of rickets. During infancy there had been a severe attack of acute gastro-enteritis and this had been followed by subacute gastro-enteric inflammatory conditions. During an attack of grip, pericarditis had set in and recovery from it had been slow. In spite of the free use of cascara, scybala were always passed in stools and constipation continued to exist.

The Attack.—Before one of the exacerbations of the disease the child became pale and listless and rings were noted under the eyes. There was some vertigo and disinclination to move around much. Nausea existed for some time and when water was asked for, vomiting occurred. The vomit consisted first of food and then of glairy mucus. The vomiting occurred even when lying down and even albumin water was not retained. The pulse was full and bounding, rather high pressure, and 120 to 140. Some albumin was found in the urine and small hyaline casts. The condition stimulated uremia somewhat, but the kidney disturbance did not seem to be the real basis of the pathological condition. There is often some pain complained of in the abdomen, but there is no tenderness on pressure. In one case in Dr. Koplik's recent experience the presence of the pain aroused a suspicion of appendicitis. The differential diagnosis was not, however, very difficult owing to the absence of any localized tenderness.

Toxemic Symptoms.—The patients are pale and anxious looking, with something of the collapsed look of those who have taken poison. Professor Senator has noticed, on several occasions, the odor of hydrogen disulphide on the breath. In one case in Dr. Koplik's practice, the odor of the breath was the same as that of the flatus. In this case the father was a physician and the phenomenon was noticed a number of times. This odor is not, however, invariable and a peculiar mawkish odor may be noticed. Once in Dr. Koplik's recent experience the breath had a sweetish smell. At times, at the end of one of the attacks, the stools may contain mucous casts of the bowel. There is always an abundance of mucus in the stools toward the end of an attack.

Apparent Recovery.—At times there is apparently complete recovery from the condition. The patient becomes bright, regains strength and weight and only the constipation remains as a reminder that the severer condition will probably return. The acute exacerbations really seem to be crises represented by a culmination of the effects of the accumulated mucus and other intestinal material. There is never any anasarca, so that despite the urinary symptoms and the bounding pulse, there is no true uremia. There is an increased elimination of ammoniacal products through the urine.

Treatment.—The best remedy is absolute rest. The giving of all food by the mouth is stopped and exclusive rectal feeding must be resorted to. Somatose injections at a temperature of 110° F. every two hours are valuable. Strychnine must be used freely, the recumbent position must be maintained until the patient is strong again. The use of cream and fat is apt to do harm. Alarming symptoms may follow nausea that absolutely forbids the taking of food for a long time; the diet must then be limited to skim milk and to vegetables that leave little residue. As a rule, bake potatoes and purée of peas are well borne. If spinach is eaten it is often found in the stools.

Prophylaxis.—The sign that an attack of the severe condition is supervening is increased pallor with restlessness and coated tongue, capricious appetite and increase of the constipation. The free use of Carlsbad salts may forestall an attack and, by relieving the bowel of its accumulation of material and draining the blood of some of its serum, and so lessening its index of toxicity, may prevent severer symptoms.

Types of Intestinal Toxemia.—In the discussion Dr. Jacobi said that the amount of urea

excreted and the absence of edema shows that there is no true kidney disease underlying the symptoms. Albumin is found in the urine whenever there is intestinal intoxication. There are two forms of gastro-intestinal toxemia. The first is due to the absorption of noxious material in the upper part of the digestive tract, the stomach and small intestines. The other is due to the absorption of toxins in the colon. Mucous colitis and its attendant train of symptoms are evidently due to the putrefaction of fat and albumin in the colon. The change in the albuminous products gives rise to the ammoniacal material in the urine. As a rule, too much fat is crowded into children. Nurslings have ten per cent. of fat in their feces. Human fat and cow's fat are very different, so that the infant is able to dispose of less of the cow's fat. The presence of unused fatty materials gives rise to fatty acids. These inevitably cause toxic symptoms. It is the custom to fatten babies with the idea that they must be healthy when fat, although this is by no means considered the rule in older people.

Milk Reduction.—For fifty years Dr. Jacobi has pleaded for milk dilution and for the reduction of fat and albumin contained in cow's milk. Albuminoid material, when not digested, putrifies. More cereals should be given than is at present the custom. There is no better disinfectant for the intestinal tract than a small amount of starch. Professor Huebner of Berlin has been converted to this position within the last few years.

Danger of Nephritis.—Dr. Chapin said that this train of symptoms, obstinate constipation and then an interval of offensive stools, with depression of the patient, is a familiar clinical picture to those who see much of children's diseases. The question of a kidney complication is well raised. There is no doubt that there is some kidney irritation. If the temporary condition is allowed to persist, it will give rise to nephritis. Constant passage of irritant material gives rise to parenchymatous nephritis. This is really the origin of the insidious kidney disease that develops so often in latter life, apparently without any reason. At times in the midst of these attacks the lungs suffer as well as the kidneys. Pneumonia is not an infrequent complication.

Chronic Intestinal Toxemia.—Dr. Southworth said that acute intestinal toxemia is well known, but chronic intestinal toxemia is not recognized sufficiently. It occurs always with constipation and may in sensitive nervous patients give rise to epileptiform attacks, so that the physician may suspect epilepsy. However, these symptoms disappear completely. Malodorous stools have a very persistent smell that even clings to the clothing. The treatment consists mainly in the regulation of diet, but the use of salol will be found not only to give good intestinal disinfection, but it also serves to reduce the irregular temperature which is so frequent an accompaniment of this form of intestinal intoxication.

Fulminant Symptoms.—At times in Dr. Southworth's experience, especially in delicate children who have not been well cared for, the symptoms of intestinal toxemia may become fulminant in character. The pulse becomes thready in character collapse ensues and death takes place from overwhelming toxemia. The bronchopneumonia of these cases usually occurs in the lower lobes of the lungs posteriorly and may give rise to the idea of a hypostatic pneumonia.

Liver Tumors.—In discussing Dr. Einhorn's paper Dr. Weir described certain cases that he has recently had under observation. In one there was a tumor in the hepatic region and the patient complained of gastralgia. It seemed as though the gall-bladder were affected. An exploratory incision was made and some of the scars on the liver surface were found to have the radiate, glistening character of syphilitic cicatrices. The wound was at once sewed up and recovery followed under antisyphilitic treatment. In a second case a slight swelling was found in the hepatic region and gave a good deal of discomfort. An incision evacuated an amount of bloody fluid and then considerable pus. A quantity of calcified material was found in a hole in the liver and this also was removed. The patient improved on mixed treatment, though there seemed very little hope for him.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held June 6, 1901.

The Vice-President, Herman Knapp, M.D., in the Chair.

Presentation of Dr. Thomson's Portrait.—Dr. W. M. Polk presented to the Academy a portrait of Dr. William H. Thomson, its former President. Dr. Polk said that Dr. Thomson's picture is a worthy addition to those already there. The fact that Dr. Thomson has been president of the New York Academy of Medicine (1899-1900) is in itself a mark of unusual standing in his profession. Nevertheless, Dr. Thomson's most distinctive qualities have perhaps been shown in his work as a teacher. A physician of wide experience and influence he has the rare gift of making the bare outlines of a dry subject take hold of his audience. He recognized early that the successful teaching of therapeutics involved not only talks on the dosage portion, but also the consideration of the physiological action of the remedies. He followed his idea so successfully and fascinatingly that his example is followed now wherever materia medica is taught. The subject, from being one of the dryest, has thus become one of the most interesting. Dr. Polk said that it is always easier to dwell upon the virtues and excellent qualities of a man who is no longer among the living than to speak of a contemporary, no matter how deserved the words of praise are in truth. However, the members of the Academy of Medi-

cine hope that it will be many years before one will be free to speak thus of Dr. Thomson, and when that time does come it will doubtless be said that he was the peer of any of those whose portraits are already on the walls of the New York Academy of Medicine.

Freezing-Point of Urine.—Dr. J. H. Huddleston read a paper on cryoscopy, the method of determining the constitution of urine by finding its freezing-point. As early as 1870 Bouchard employed this method in the examination of the urine. Malasser and Hamburger followed in 1872. In 1891 Dreser took it up and finally Koranyi began his studies in 1894. Koranyi's investigations were given to the world in 1898, but at the International Medical Congress in 1900 the method received its first extensive public notice. Outside of Germany and France, however, the method has as yet received comparatively little attention.

Law of Cryoscopy.—Cryoscopy is based on Raoult's well-known law and on Koranyi's theory of molecular interchange in the convoluted tubules of the kidney. Raoult's law may be stated briefly as follows: The lowering of the freezing-point of a solution is proportional to the number of molecules dissolved in the unit of volume of the liquid whatever be the nature and weight of the molecules. Of two urines, then, the one whose freezing-point is lower will contain more molecules in solution than the other. The value of urine as an excrementitious product depends on the number of molecules of dissolved material that it carries out of the organism. The number of molecules dissolved in the urine represents also, within certain limits, the permeability of the kidney. This principle is not absolutely true, because the sodium chloride dissolved in the urine cannot be considered an excrementitious product, as it passes out unchanged. Allowance has to be made therefore for the chloride molecules present by estimating the amount of chloride in the urine.

Koranyi's Theory.—Koranyi holds that water, containing sodium chloride in such amount that the solution has the same osmotic tension and therefore the same freezing-point as the blood plasma, is filtered through the walls of the glomeruli of the kidney. This solution, as it flows through the tubules and Henle's loops, returns to the blood a certain amount of water and a certain number of molecules of the sodium chloride and receives exactly the same number of molecules of more complex substances; in fact, it takes on the character of urine there. If the glomerular filtration is rapid the flow of urine is rapid and the rate of molecular interchange in the tubules per unit of urine is slow. Such would be the case with high arterial tension. On the other hand, if the glomerular filtration is slow the flow of urine is slow and permits a high rate of molecular interchange in the tubules. Such would follow in renal stasis or in injury to the glomerular wall as in glomerulo-nephritis. Again, no matter what the rate of urinary flow, if the epithelium of the tubules performs its work imperfectly or obstructs the interchange, the rate of that molecular interchange must be lowered. Such would naturally follow in tubular nephritis, or in any other organic or functional affection of the tubules.

Value of Cryoscopy.—The proofs of the value of cryoscopy must be found in clinical experience with the method and the determination of the accordance of its results with those of chemical observations made in other ways, as with the methylene blue test and with autopsies. A certain number of autopsies are on record in which the conditions present in the heart and kidneys were predicted by the results of cryoscopy, but as a clinical method it is not yet well worked out. Dr. Huddleston's own experience is limited, but, as far as it goes, testifies to the agreement of inferences from cryoscopy with those drawn from usual clinical methods. Comparisons are difficult, however, for urinary cryoscopy is pre-eminently a test of function, independent of structure.

Determination of the Freezing-Point.—Dr. Huddleston uses the method advised by Prof. E. H. Loomis of Princeton, who has been interested for a long time in the observation of freezing-points of solutions, for determining the freezing-point of urine. Professor Loomis' method is to place the test-tube in another tube a trifle larger, keeping them apart with a rubber band. The inside tube should be bottle-shaped at the bottom, so that the stirrer may go to its lowest point and dislodge any ice that would otherwise tend to mass itself there. The thermometer may be held in place by thrusting it through a cork. The stirrer may be a simple piece of spiral wire. There is then prepared a mixture of finely-pounded ice and water. This is put in a vessel of glass heavily wrapped with felt. Sufficient salt is added to this mixture so that the temperature is about that of the freezing-point of urine. The test-tube is filled about a third full of urine and exposed to the freezing mixture until the temperature of the urine has fallen about three- to four-tenths of a degree below the temperature at which the urine freezes. A tiny crystal of ice is dropped into the overcooled urine. This at once begins to freeze and the temperature rises, finally stopping at the freezing-point. This requires about one minute and a reading of the thermometer is then taken. This method determines the freezing-point within $^1/_{1000}$ of a degree Centigrade. Professor Loomis says that the instruments made by R. Fuess of Berlin, Germany, are the only ones that have given him satisfaction. Dr. Huddleston himself has found it helpful to use for the double tube two vials with flat bottoms and to put in the outer

sufficient absolute alcohol to make its level the same as that of the urine in the inner tube.

Foreign Methods of Freezing.—Foreign workers have advised cooling the urine by ether or carbon bisulphide rapidly volatilized by a current of air. The mercury falls slowly to a certain point and then suddenly, with or without the addition of the particle of ice, rises to the freezing-point; while it is rising it is especially necessary to keep the urine well stirred. After a moment, when more or less of the urine is frozen, the temperature gradually falls again to correspond with that of the freezing mixture. It is necessary, therefore, to take the highest point to which the mercury ascends as the freezing-point. The time necessary for this observation varies from fifteen to twenty minutes.

Precautions.—Certain precautions are necessary: The urine must not have undergone any fermentation, as the number of molecules and the freezing-point are affected by that change, freezing throws down a precipitate; the urine must be diluted until that action is avoided; no antiseptics and no medicine must be in the specimen. The percentage of sodium chloride is determined by Volhard's method. It must be remembered that, while cryoscopy is a notable advance in the application of quantitative physico-chemical methods to clinical work and while it may furnish information of considerable value in diagnosis and prognosis in cases of cardiac disease and to a less extent in other cases, it is distinctly a laboratory method requiring time and care.

Dr. Huddleston in conclusion expressed his obligation to Prof. E. H. Loomis of Princeton for much kind advice as to method and to Dr. J. J. Walsh of New York for the stimulation he gave toward the study of the subject of the paper.

Cryoscopy and Surgery.—Dr. B. Lapowski said in discussion that the method promises great things in kidney surgery. When one kidney has to be removed the important question is the condition of the other one. During the last ten years the custom has been to take urine separately from each kidney. The urine thus obtained was then examined microscopically and chemically. Nevertheless, there are cases on record in which the examination was made with all the care possible and the results seemed to justify the operation, but the patient died within twenty-four hours of uremia, not having passed one drop of urine. Cryoscopy can, perhaps, tell why these things have happened. The kidney has two purposes, the eliminative and the functional. Some ingredients are produced by the kidney alone, such as hipuric acid, for instance. Cryoscopy is a functional as well as an eliminative test.

Dr. Lapowski, however, does not think it sufficient to pay attention only to the urine. The blood also must be considered. To arrive at a correct conclusion one must try to determine not only what comes out of the kidney, but also what is brought into it. There are times when it is of the greatest importance to the surgeon to know, if possible, which organ is primarily affected, the heart or the kidney. Therefore the density and freezing-point of the blood should also be ascertained.

Dr. Lapowski congratulated Dr. Huddleston on his paper, the first one presented in this country on this subject. Cryoscopy is not only an advance in diagnosis; it is a method which will enable the physician to follow his cases more intelligently.

A Pessimistic Note.—Dr. Alfred Mayer said in discussing Dr. Huddleston's paper that he for one must strike a pessimistic note. Every practitioner has seen renal cases in which one kidney was absolutely cut off from activity by its sympathy with the other. Dr. Mayer has seen renal calculus limited to one kidney, where there was complete anuria, lasting from one to three or four days, during an attack of renal colic. The other kidney was perfectly healthy. It had refused to act merely out of sympathy. The pessimistic note is, Will or will not the surgeon get complications like this?

Dr. Huddleston said in closing the discussion that he agrees with Dr. Mayer as to the gravity of the question of complications arising in kidney surgery, which cannot be anticipated by any test. A kidney has been known to be diseased, and yet the patient had done well after operation, while again the kidney remaining might show no pathological changes and yet not work. Cryoscopy is still open to criticism, but it does show some advance in methods of diagnosis. As for the examination of the blood advocated by Dr. Lapowski, it adds a distinct element of danger in run-down cases. Koranyi seems to think it useless unless 10 to 15 centimeters of blood are employed, which is too much to take from the patient.

The Most Insidious Diseases.—Dr. Louis Faugères Bishop said the disease which the family physician fears most are not those which have definite names and figure most prominently in health reports. They are rather those which touch on the domain of the heart and the kidneys —Bright's disease, senility, arterial degeneration, and so on.

Extreme Arterial Degeneration.—Dr. Bishop showed a heart which was a remarkable example of extreme degeneration. It was not the heart he had meant to show as illustrative of some of the things he had to say, but one that had been sent instead by mistake. Nevertheless, it was so remarkable that he felt it was of sufficient interest to show under the circumstances. The patient was brought into the hospital in a state of collapse and aphasic. Dr. Bishop suspected extreme thrombosis of many vessels. The temporal and radial arteries stood out, extremely atheromatous. As the man showed some pulmonary symptoms he was put in the consumption ward. Before death occurred the man became very delirious. Dr. Bishop suspected white

thrombosis in the heart, as an explanation of the bad condition and the delirium. At the autopsy he found a white thrombus of considerable size in the right and left side. The left ventricle was hypertrophied and the coronary arteries supplying the right ventricular wall were diseased and thickened and had a distinctly nodular feel under the finger. The right side also showed fatty degeneration of the muscular elements. Dr. Bishop presented also the heart of an old man, who had an extreme kyphosis with a large spinal curvature under the left shoulder. He was thus deformed for eighty years and the heart was dented by the pressure of the spinal column on it.

Symptoms of Arterial Degeneration.—Arterial degeneration is usually marked by ruptures of the stiffening blood-vessels. Sometimes these cause hemorrhages into the lungs which are not very serious, but a rupture into the brain is a grave condition. There is greater danger, however, from secondary disease caused by arterial degeneration. These are the diseases of the heart and kidneys that arise from the thrombosis of chronic intoxication and overwork and the aneurism of the physical toiler. The degeneration is most interesting in the smaller vessels. Early recognition alone will enable us to combat the conditions that lead to cardiac and nephritic changes. The thickening of the arterial walls narrows the lumen and emphasizes other vaso-constructions. This is most evident in the effect upon the brain. There is dizziness, occasional clumsiness of motion, sometimes a slowness or lack of response in a limb and mild aphasic symptoms. Once these conditions have become advanced and the connective tissues are fully formed, improvement is impossible.

The Victims Are the Useful Individuals.—The saddest aspect of arterial degeneration is that it attacks the members of the community who are the most useful and the most successful. The slothful and the indifferent are in no danger. It is typical in young, successful business and professional men, into whose lives hard work and a certain amount of dissipation enters. Heredity also plays a part in the tendency to arterial degeneration. The life of the blood-vessel in the main depends on the use made of it. The condition of degeneration is slowly developed and, in the meantime, the subject is often the type of health and vigor, the high blood-pressure to the brain stimulating energetic and complex activity. The color of the subject is usually ruddy, the walk is firm, the muscles well nourished, the digestion good. It is often the characteristic condition of the active man of many affairs, as well as of the woman in the whirl of social functions. Sometimes, however, the subject is slightly built and in contrast to the ruddy type, is pallid and nervous. These are generally the types characterized by indigestion.

Hygienic Measures.—The first thing is to remove as far as possible the cause of the condition. Syphilis figures more frequently in the etiology of arterial degeneration than seems to be generally thought. It is a disease of the intoxications—intoxication of alcohol, the intoxication of overwork, and the intoxication of indigestion and syphilis. Alcohol is a difficult factor to combat. Few who are addicted to its use will give it up. The physician must therefore insist at least upon its limitation to table use. In arterial degeneration digitalis and iron are contra-indicated. Digitalis will hasten degeneration and excess of iron acts as an astringent and further interferes with the circulation. The alkalies, water, and the bitter tonics are the only agents that have a direct bearing on the condition. Moreover the necessity of rest, at all times and everywhere, should be impressed on the patient.

Symptoms Resembling Neurasthenia.—Many of the symptoms of arterial degeneration resemble neurasthenia. There is sometimes a momentary loss of power to grasp things, a sense of pressure at the back of the head. In these cases the bromides are useful. Sometimes there is a sort of chorea of the blood-vessels causing a hot sensation on the back and in the head, somewhat similar to the symptoms characteristic of the menopause in women. For these cases iodide of soda should be given in small and persistent doses. The latter type may also be given $^1/_{100}$ of a grain of nitroglycerin three times a day for one week each month. Business matters and personal affairs must be adjusted so as to avoid exhausting responsibilities and depressing worries. Work must, in fact, be given up to a certain extent. In the pallid, nervous, low-spirited, moody cases, associated with indigestion, this is especially necessary. Sometimes there is a rupture of the small blood-vessels of the conjunctiva. While it is in itself insignificant it may precede more serious symptoms, and in at least one recorded case sudden death followed.

Analogy between Nervous and Arterial Systems.—There is a close analogy between the degeneration of the nervous system and that of the arterial system. This much may be said for neurasthenia—a good neurasthenia frequently saves a man from an arterial degeneration later in life. It puts a damper upon his vital forces and inclines him to that letting-go of things which is his saving. This is especially true of those who have been of sanguine, enterprising and active habits. In both the diseases, prominent factors that have to be combated are the chronic intoxications of overwork, diet, drink and syphilis.

American Association for the Advancement of Sciences.—This large and influential body of scientists held their annual meeting Tuesday, Wednesday, Thursday and Friday of this week at Denver The attendance was large and many papers of unusual scientific interest were read. A special excursion to the Grand Cañon of the Colorado was planned to take place at the close of the meeting.